INDIA RUBBER WORLD
FOUNDED 1889
CAOUTCHOUC
GUTTA-PERCHA
Reg. U.S. Pat. Off.
Reg. United Kingdom.

Published on the 1st of each month by

THE INDIA RUBBER PUBLISHING CO.

No. 25 West 45th Street, New York

Telephone—Bryant 2576

CABLE ADDRESS: IRWORLD, NEW YORK

Member of the National Publishers' Association

HENRY C. PEARSON, F.R.G.S., Editor

Vol. 74 MAY 1, 1926 No. 2

SUBSCRIPTION: $3.00 per year, $1.75 for six months, postpaid, for the United States and dependencies and Mexico. To the Dominion of Canada and all other countries, $3.50 (or equivalent funds) per year, postpaid.

ADVERTISING: Rates will be made on application.

REMITTANCES: Should always be made by bank draft, Post Office or Express Money Order on New York, payable to THE INDIA RUBBER PUBLISHING COMPANY. Remittances for foreign subscriptions should be sent by International Postal Order, payable as above.

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Successful Guayule Cultivation

THE official announcement of the success, following years of experiment in guayule cultures by the Intercontinental Rubber Company in California, is the best of news, to quote from its published reports:

"While we feel sure that further improvements will be made, we are using proven methods and available seed supply in going ahead with the first commercial planting of 200 acres in California. At the same time, we are starting seeds for an additional 600 acres of plants to be set out next winter.

"As a matter of policy we expect to increase our commercial operations gradually and we are dedicating the major portion of resources and organization to that purpose.

"In the foregoing connection, it may be noted that guayule shrub will grow and produce rubber under a wide variety of soil and climatic conditions, just as is the case with potatoes, sugar beets, etc. However, as in the cases cited, there will always be found certain localities where optimum conditions exist, and the industry will eventually center around factories erected at such places.

"While guayule can be grown on extremely poor lands, such as it selects in nature, still it readily responds to rich, high-priced soils of proper texture, and the value of the crop under intensive cultivation is such as to warrant its use."

A Fund That Died A-Borning

AMERICAN rubber manufacturers may of late have had many worries, yet they may also felicitate themselves on some things that did not come to pass. One cause for congratulation is the fact that they did not, when rubber prices were soaring, allow themselves to be worked up into such a frenzy of indignation and retaliation that they would have established a so-called "fighting fund," as was proposed in high quarters, to combat the rise in rubber. The fund was to have been founded through the levying of a tax of two cents a pound on rubber imports. As the latter in 1925 totaled 860,000,000 pounds (or 391,000 long tons) "sinews of war" would have been available, had the suggested tax been imposed, reaching $17,200,000.

Even were it wisely administered, how might such a fund be employed to benefit American rubber interests? Possibly some plantations could be established which would yield fair returns half a dozen years hence, if all went well. Yet as the whole sum named would be but one-fiftieth of the capital now invested in rubber raising in the Far East the chances are that the new enterprise would have about as much chance of influencing the market as a small shopkeeper has in competition with a great chain store corporation. Of course, it could grow, but its well-grounded rival would also grow; and in a commercial warfare the latter could be depended upon to employ resources that its opponent might never hope to match.

Luckily, however, the rubber manufacturers did not lose their heads. Their common sense prevented them from being stampeded into a scheme plainly doomed to disaster from the outset, and which would have not only incited bitter hostility but would have brought upon them world-wide ridicule. Nor could they see why the gov-

ernment should get into the rubber business any more than into any other; and well they realized that where politicians ever did intermeddle they invariably intermuddled, so that the last state of the beneficiary was even worse than the first.

Philippine Rubber Planting

To one who views Philippine rubber planting prospects, whether as manufacturer or planter, there does not seem much of present promise in sight. Actually there seems no likelihood that the land or emigration laws will be repealed or even modified. Nor is Washington apt to urge anything along those lines. The reluctance on the part of capital to enter the planting field arises not so much from the land laws or lack of labor as from a feeling that such an investment would not be properly safeguarded. It was doubtless with this in mind that led one possible large scale planter to demand the grant of a large area of land; a partial guarantee against millions to be invested.

In the event that no such grants are given it remains for the small planter, particularly the Filipino, to get into the business himself. The success of sugar planting in small holdings with a central sugar mill, and of copra production from scores of small *cocales* with an oil mill as a central is suggestive. Native plantings of Hevea with a central coagulating and washing plant are just as feasible and give promise of much profit.

The natives in British and Dutch territory are successful if not ideal planters. Why not the Filipinos backed by their own government? At all events they should either do the planting themselves or allow others to do it. It is time they decided "to fish, cut bait or go ashore."

Tire Repair Charges Vary Widely

A COUNTRY-WIDE review of vulcanizers' rates may be interesting, but it does not appear to help much in solving the question, "What is a fair price for repair work?" The average charge for a retread job on a 32 by 4 cord tire in Kokomo, Indiana, for instance, is given as $5.50; in Buffalo, New York, $7; in New York City, $8; in Salt Lake City, Utah, $8.95; in Portland, Oregon, $11; in Seattle, Washington, $11.50; in San Diego, California, $12; in Kansas City, Missouri, $14.25; and in Philadelphia, Pennsylvania, $14.30. The costs of other casing and tube repairs are in much the same proportion. Explanations for such curious latitude in prices are conflicting. They are said to be greatest where the repair men are organized, and least where there is no union of workers or employes. Keen competition undoubtedly accounts for low prices in some places. There is not enough difference in the cost of materials alone to explain the wide dissimilarity in repair charges throughout the country. Probably the factors which have the greatest influence are overhead and the cost of labor.

Rubber Nipples Abolished in France

"*A bas le tétin caoutchouc!*" is the new slogan of France in dealing with the decline in population. The august Chamber of Deputies, unable to stop the fall of the franc, has decided that it can at least offset the diminishing birth-rate. Accordingly it has issued an edict, "Down with the rubber nipple!" Within three months it hopes to entirely abolish the gum-elastic tips of nursing bottles, and to start the national census once more on the up-grade. The deeper causes for inhabitants becoming fewer apparently give the solons less concern than the innocent appendage of a milk bottle. The banned article has been accused of causing much mortality through choking children and spreading disease germs. Well, how much further are the deputies likely to carry their warfare? What of medicine droppers, "baby comforters," teething rings, nursery sheeting, sanitary breechcloths, or the various rubber toys that infants invariably put into their mouths? Unless means can be found to sterilize them every time before using, soon they may all be considered contraband.

SETTING A MINIMUM PRICE ON RAW MATERIAL AND restricting its sale overseas,—as has been done with crude rubber,—is not a new British policy, as some aver. Back in the Ninth Century when England's exports consisted of raw materials to be worked up by other nations, and when the chief export was wool, in order to keep up its price, King Edgar prohibited its sale for less than 120 pence on pain of forfeiture of 46 shillings from seller and buyer. Later Edward III, not only set a minimum price on wool but, in the hope of developing cloth manufacture, actually prohibited the export of wool on pain of death. Fancy the fate of offending crude rubber dealers had they lived in those days!

SOME NATIONS PROFIT FROM RAISING RUBBER BY MEANS which rouse no resentment yet which yield as much pro rata as either direct tax or restriction. In Cochin-China, for instance, where some 7,000 tons were produced last year, the French Government did very well simply through a 5.1 per cent ownership of all the plantations.

AS IN BIOLOGICAL EVOLUTION, THE SURVIVAL OF THE fittest seems to be the rule also in the rubber industry. In 1920 there were 258 tire manufacturers in the United States; last year there were 93; and this year there are scarcely 70. It is regrettable that among those that fell by the wayside were many that merited a better fate; but as the trend appears to be toward fewer and better factories with superior products, and as it undoubtedly conduces toward greater stability in trade operations generally, the passing of the old order may after all be only a blessing in disguise.

A Glossary of Words and Terms Used in the Rubber Industry–XVIII[1]

Insulation—Wires—Cables—Tapes—Compounds

Acetate Wire. A fine, insulated conductor designed to replace cotton and silk insulated wire, and to save space on coils; made by coating wire with many layers of cellulose tetra-acetate, or acetic cellulose. See Enameled Wire, Varnished Wire, Wire.

Aerial, or Aerial Wire. Antenna Wire. See types in group, Radio.

Aerial Cable. See types in group, Cable.

Aerial Lighting Cable. See Cable.

A. E. S. C. American Engineering Standards Committee. See Code.

Aetna Material. A dielectric composition. See Compound (Insulating).

A. I. E. E. American Institute of Electrical Engineers. See Code.

Alarm Wire. An accessory for a cable, a wire insulated in the jute, hemp, or braid under the lead sheath of a submarine or other cable, and which when damaged transmits a signal of injury to wire and cable. Called also Alarm Cable, Pilot Wire, Proof Wire. See Pilot Cable.

Alarm Wire Cable. See Cable.

Albertol. A dielectric composition. See Compound (Insulating).

All-Rubber Portable Cord. See Cord.

Aluminum, Aluminium. A silver-white, ductile, malleable metal remarkable for its lightness and resistence to oxidation; used to a limited extent as an electrical conductor. With the conductivity of drawn, annealed copper given as 100, that of aluminum is 63.09, and relative weights of the metals are .3312 and .0967.

Aluminum Armature Wire. A conductor of aluminum sometimes used for windings on dynamos and motors and other apparatus, the insulation being a thin film of aluminum oxide. Advantages claimed are lightness with dielectric quality approximately equal to that of silk-wound copper wire, but with no greater diameter than the latter.

Aluminum Strip. A narrow aluminum conducting tape, paper covered, used for exceptionally high voltage winding of main transformers in testing sets, one type of the latter employing 30 miles of such tape in a 1,500,000 volt test. Valued chiefly for its lightness as compared with copper.

Ambroin. A dielectric composition. See Compound (Insulating).

Annunciator Cable. See Cable.

Annunciator Wire. A class of soft-drawn, insulated wires used with batteries or transformers in operating bells or signal boxes in hotels, offices, hospitals, etc.; made in Nos. 14, 16, 18, 19, 20, 22 and 24 American Wire Gage (formerly Brown & Sharpe) bare or tinned wire, solid, single conductor, or in twisted pairs, with two windings of vari-colored cotton yarn applied in opposite directions, saturated with wax or other moisture-repelling compound, and glazed or polished. If the inner winding be saturated with waterproof compound the wire is termed dampproof or black core annunciator wire.

Antenna Cord. See Cord, Radio, Receiver Cord.

Antenna Lead in Wire. See Radio, Antenna Lead in.

Antenna Wire. See Radio, Antenna Wire Window Strip, Window Strip Cord.

Anti-Induction Telephone Cable. See Cable, Telephone.

Apparatus Cable. See Cable, Power.

A. R. A. American Railway Association. See Code.

Arc Light Suspension Cable. See Cable, Light.

Armalac. A dielectric composition. See Compound (Insulating).

Armature Tape. See Tape.

Armature Varnish. A lacquer used in coating armature windings, adding insulation and resistance to friction and moisture. See Compounds (Insulating).

Armor. A spiral (sometimes braided) wiring or bendable metallic sheath of various types used for protecting underwater or underground cable, and other conductors, from mechanical injury. See Cable.

Armored Cable. See Cable.

Armored Reinforced Portable Cord. See Cord.

Armored Reinforced Portable Waterproof Cord. See Cord.

Artificial Cable. See Cable, Telegraph.

Artificial Silk. An insulating material for over-all braiding formed of cellulose filaments resembling silk and for which it is substituted. It is prepared by nitrating wood pulp and forcing the collodion preparation through a die with minute tubes. When the solvent evaporates, threads of pyroxylin are formed, which, with chemical treatment, acquire the properties of cellulose. Also prepared by dissolving cotton paper of the blotting type in sodium xanthate (a compound of carbon disulphide and caustic soda) and forcing the syrupy solution through capillary apertures in a steel plate to form viscose threads. By means of a somewhat similar process artificial silk is also made from the cellulose in wood fiber.

Asbestos. A white, gray, or grayish-green non-aluminous variety of ferro-silicate of magnesium occurring in long, soft fibers or in fibrous masses, having electric insulating properties, but especially valuable as a heat-insulating, incombustible, and chemically resistant material; much used for protecting rubber or other wire covering exposed to very high temperatures; native mineral wool.

Asbestos Cord. See Cord.

Asbestos Cotton Covered Wire. A heavy conductor used largely as magnet wire for railway motors, made by winding wire with a very thin asbestos tape and giving it a single or double winding of cotton. Sizes Nos. 0000 to 9 A. W. G. See Magnet Wire.

Asbestos-Covered Fixture Wire. See Cord.

Asbestos-Covered Magnet Wire. A magnet wire coated with asbestos designed for use where heat may be very high or where acid or other fumes would harm other insulating materials. Much used for motors likely to run hot. Round wire sizes usually 3/0 to No. 20; rectangular and square wire in nearly all sizes below .5 by .25-inch. See Magnet Wire.

Asbestos-Covered Wire. A conductor having a coating solely of asbestos or of such material in addition to others, and designed for electric stoves, smoothing irons, certain types of rheostats, and other electrical instruments subjected to considerable heat. See Heater Wire.

[1] See Crude Rubber and Gutta Percha Definitions, *The India Rubber World*, 1921; Pneumatic Tire Definitions, *The India Rubber World*, 1921 and 1922.

Asbestos Switchboard Wire. A solid copper conductor insulated with a 1/32-inch felted wall of asbestos fiber and finished with a hard outer asbestos braid, heavily impregnated with flameproof compound; much used for low-voltage switchboards.

Asbestos Tape. See Tape.

Asbestos Wrap. A serving of closely wound asbestos yarn on wire over which asbestos or other braid is applied. See Asbestos-Covered Wire, Non-Ignitible Wire.

Asphalt-Coated Tape. See Tape.

Association Cable. See Cable.

A. S. T. M. American Society for Testing Materials. See Code.

A. S. W. G. American Steel & Wire Gage. See Gage.

Automobile Horn Cable. See Cable.

Automobile Ignition Cable. See Cable.

Automobile Lamp Cable Cord. See Cable.

Automobile Lighting Wire. Also Cord Cable. See Cable.

Automobile Starting Cable. See Cable.

Automobile Tape. See Tape.

A. W. G. American Wire Gage. See Gage.

Backboard, Panel, Hook-up Wire. See Radio.

Basket-Weave Cable. See Cable.

Battery Charging Cable. See Cable.

Bead-Insulated Wire. A copper conductor used for connecting controlling switches with motor starters, heating elements, etc., and the insulation of which is afforded with perforated glass beads. After being in disuse for many years, on account of "gaps," brittleness, and inadequate heat resistance, this form of insulation is again being employed in an improved form, the glass having a tougher, higher heat-resisting quality and the beads being of the ball and socket type molded to .001-inch. It is very flexible and non-hygroscopic. British make.

Bead Insulation. A form of insulation obtained by stringing glass beads upon bare wire. See Bead-Insulated Wire.

Beeswax. A dielectric composition. See Compound (Insulating).

Bell Flexible. See Cord.

Bell Wire. A single conductor used for call bells, telephones, and light electrical devices. Made in .029, .036, .044, .083, .090, .098-inch sizes, solid and tinned, insulated with pure rubber, covered with two layers of cotton braid, and served with paraffin wax. Also made as a double conductor, or twin-twisted. See Annunciator Wire.

Bicycle Tape. See Tape.

Bind Wire. A solid conductor of copper or iron, sizes 18 to 23 S. W. G., core covered with one lapping of cotton, with a cotton braid impregnated with insulating and weatherproofing compound.

Bituminized Fiber Conduit. See Conduit.

Black Core Annunciator Wire. See Annunciator Wire, Black Core Office Wire.

Black Core Office Wire. An office wire having two inner cotton windings, reversely laid, saturated with weatherproof compound to make it very moisture resistant, and covered with cotton braid paraffined and polished. See Damp-proof Office Wire. See Annunciator Wire.

Black Tape. See Tape.

Black Varnished Cloth Tape. See Tape.

Block System Wire. A telephone conductor also known as bridle wire. See Bridle Wire.

Blue Friction Tape. See Tape.

Boiler Room Cable. See Cable.

Border Light Cable. See Cable.

Braid. A wire covering formed of plaited or closely-interlaced cotton, silk, or other threads, and while designed to protect the rubber or other coating of the core, also affords supplementary insulation. Also a similar fabric for binding together coated conductors in a cord. See Braided Wire, Cord.

Braid, Spiral Weave. A cotton fabric covering for insulated cable consisting of heavy multiple threads running parallel to the conductor, instead of at an angle, and tightly bound to the cable by heavy filler threads. Designed chiefly to supply strength to cables in long spans.

Braided Enameled Antenna Wire. See Radio.

Braided Insulation. See Braid, Braided Wire.

Braided Steel Wire Armor. A cable armor composed of fine galvanized steel wires in basket weave affording much flexibility with mechanical protection; much used in ship wiring where it is desired to avoid conduits, and sometimes employed for portable apparatus. A type of cable used by the United States Navy has a heavy stranded wire core, rubber insulation, rubberized taping, lead tubing, taping, and braided steel armor.

Braided Wire. A wire, solid or stranded, which, after being tinned or served with a cotton wrap, jacketed in rubber, or taped, has woven over it a silk or cotton (rarely wool) reinforcing, insulating, and protective cover in one or more layers; and is commonly finished as dry-glazed, wax-polished, or fireproofed or weatherproofed and slicked. Also a conductor on which asbestos threads have been woven. See Cord.

Brewery Cord. See Cord.

Bricklayers' Tape. See Tape.

Bridle Wire. A solid conductor used for short telephone connections between cable terminals on buildings to station lightning arresters, supported in rings used between aerial and underground cable terminals on the same pole; to connect cable terminals with open wires; for a "ring run" upheld by a messenger wire; and also used instead of inside wire. Usually made in sizes 18 and 20 A. W. G. with insulation of vulcanized rubber, covered with waterproof braid, twisted in pairs, and having a raised thread for a tracer. See also Block System, Ring or Spider Wire. Sometimes called Bridal Wire, and Waterproof Bridle Pair Wire.

Brunswick Black. A dielectric composition. See Compounds (Insulating).

Brush Wire. A flexible conductor for connecting dynamo field coils to brush holders; cores formed of many strands of 36 A. W. G. wire in sizes 6 to 18 A. W. G., insulation, one silk and one cotton braid.

Bunched Cable. See Cable.

Bunched Strand. A strand forming a single conductor and consisting of a group of wires in straight lay or twisted without concentric design. See Concentric Strand, Strand, Stranded Conductor.

B-X Cable. See Cable.

DEALERS' TIRE STOCKS ESTIMATED

Preliminary estimates regarding stocks of automobile tires held by dealers in the United States are being published by the Department of Commerce, following that organization's fourth semi-annual survey. It will be noted from the figures below that the average number of casings per dealer is 63, slightly higher than that of a year ago, 62.2. The compilations also show that considerably the largest number of dealers carry from 10 to 25 casings, or 28.26 per cent of the number reporting, while the smallest figure, or .51 per cent, is representative of dealers carrying above 1,000 casings. A final and detailed summary, tabulating returns by states, is soon to be issued by the Rubber Division, Department of Commerce.

DEALERS' STOCKS OF AUTOMOBILE TIRES

	APRIL 1, 1926			APRIL 1, 1925		
	Number	Dealers Reporting	Average per Dealer	Number	Dealers Reporting	Average per Dealer
Total casings (including balloons)	1,680,318	26,675	63.0	2,026,356	32,592	62.2
Balloon casings (alone)	326,147	15,117	21.6	144,433	9,745	14.8
Inner tubes	3,145,220	26,639	118.1	3,317,104	32,477	102.1
Solid and cushion tires	35,281	1,464	24.1	47,958	2,381	20.1

Drying Crude Rubber

Air Drying on the Plantation—Factory Drying Washed Rubber—Air Drying in Ventilated Warm Air Lofts—Vacuum Drying—Kiln Drying, Gravity and Ejector Systems—Typical Drying Losses of Crude Rubber Grades

FREEDOM from moisture is as important a condition in rubber goods manufacture as freedom from dirt of all sorts. In the preparation of rubber from wild sources, little, if any attempt is made to eliminate moisture which is usually as prevalent as dirt. Hard fine Pará, however, is an exception because its mode of preparation, by exposure to heat and smoke in the open air, drives off much moisture and leaves the rubber reasonably dry.

Plantation Drying Method

With the introduction of plantation rubber, drying methods became necessary to condition the washed and sheeted rubber for packing and shipment. Drying immediately follows the washing process, whether in the preparation of crude on the plantation or in the manufacturing plant.

Air Drying on the Plantation

While the same modern facilities for drying are available for the progressive plantation rubber grower, and the rubber goods manufacturer as well, it is natural that the simplest and least expensive method to install should be adopted in the majority of cases. This is, of course, atmospheric drying in the sun or in a simple building where the washed sheets are hung on poles or lines much as ones' clothes are hung in the sun to dry, except that the rubber is usually under cover and can be protected from rain.

The exterior of a plantation factory drying house is shown in Figure 1 and its interior in Figure 2. In dry sheds of this character the air has free circulation and the rubber is dry after hanging 2 to 4 days according to the prevailing weather. Native rubber growers often dry their sheets only in the air or sun. Where there is plenty of air space there is no objection to simple air drying.

In estate practice, air drying sheets without the aid of heat is never done since the production of smoked sheets is the rule and drying and smoking of the sheets can be effected at the same time in the smoke house. This is a light built shed-like structure, a typical interior view of which is shown in Figure 3. Here the sheets are hung over cords and subjected to a circulation of mixed warm air and smoke. The latter is produced from slow burning wood in a furnace which may be located outside the smoke house. The circulation of hot air and smoke dries the rubber rapidly while the products contained in the smoke penetrate the rubber serving to bring it to a uniform color and protecting it from fungus growths or mildew. The combined drying and smoking process may be carried on at 40 to 50 degrees C. and is prolonged from 10 to 14 days to properly cure the sheets to an even color.

Shrinkage of Crude Rubber, Balata, Etc., by Washing and Drying

PLANTATION GRADES	Per Cent Shrinkage
First Latex Crêpe	1 – 2
Ribbed Smoked Sheets	1 – 2
Amber Crêpes, Chinese Native	2 – 3
Clean Roll Brown Crêpe	2 – 3
Ceylon No. 1	6 – 7
Ceylon No. 2	15 – 20
BRAZILIAN GRADES:	
Upriver Fine Pará	16 – 19
Upriver Coarse Pará	22 – 25
Islands Fine Pará	20 – 23
Islands Coarse Pará	45 – 55
Cameta	45 – 50
Caucho Ball	22 – 30
Ceara Negro Heads	25 – 35
Central American Scrap	18 – 25
AFRICAN GRADES:	
Black Kassai	6 – 8
Congo Cakes	10 – 15
Congo Cords	10 – 20
Gaboon Ball	25 – 35
Gold Coast Lump	40 – 55
Lopori Prime	5 – 8
Red Massai	12 – 15
Red Upper Congo	6 – 10
BALATA:	
Brazilian	15 – 20
Venezuelan Block	10 – 15
Venezuelan Sheet	5 – 10
Pontianak, Pressed Block	20 – 25
Gutta Siak	18 – 25

The above list of shrinkages represents current factory practise. These losses, as far as rubbers from uncultivated sources are concerned, show no improvement over those of similar grades marketed previous to the general introduction of plantation rubbers.

Artificial Driers

The introduction of artificial driers for preparation of plantation rubbers has not been general, due to various conditions because air dried rubber can be made equal if not superior in appearance to pale rubbers prepared by any other process. While for the lowest grades of crêpe, air drying is always likely to remain the only method, as it would be extremely unsafe to submit them to heat.

Rapid drying by artificial driers possesses the advantage of forestalling fungoid and bacterial diseases in crêpe rubber. The simplest treatment, however, for the prevention of these diseases is to dry the rubber in the briefest period of time. In most cases it is found sufficient to roll crêpe thin for air drying in order to prevent the occurrence of colored spots. Where ample accommodations exist, and regular shipments are made, ordinary air drying will remain the general practise.

Vacuum Drying

Vacuum drying has been applied in the preparation of plantation rubber. Actual working tests have shown that such a drier will dry rubber satisfactorily within 2 hours without injury to the product. The failure of the system to secure general adoption seems to be the constant watchfulness needed and not to be found in the run of labor available. The two essential points for successful working are: that the rubber must be fairly thin, and that the temperature does not rise above 140 degrees F. as a maximum, but no harm results at 150 to 160 degrees F. if the interval be very brief.

Factory Drying Methods

In drying crude washed rubber of many sorts the rubber goods manufacturer has to do with drying conditions differing from those of the rubber planter. He also must dry his rubber rapidly, thoroughly and without injuring its quality. In operating conditions and facilities, however, he has wider range than the planter. For many years the common practise in factory drying rubber was simply to hang the wet sheets from the wash room over wooden bars supported in racks in a room such as shown in Figure 4, and there allow it to remain till dry or needed.

The first improvement in air drying was the introduction of ventilation to remove the moisture laden air. A properly arranged loft for free air drying must be spacious enough to permit

free passage of air between the suspended sheets. Also the space should be well ventilated, and piped with radiation sufficient to maintain a comfortable temperature during cold periods. As rubbers may hang for some weeks in the loft after drying, it is well to provide the windows of the drying room with dark shades to

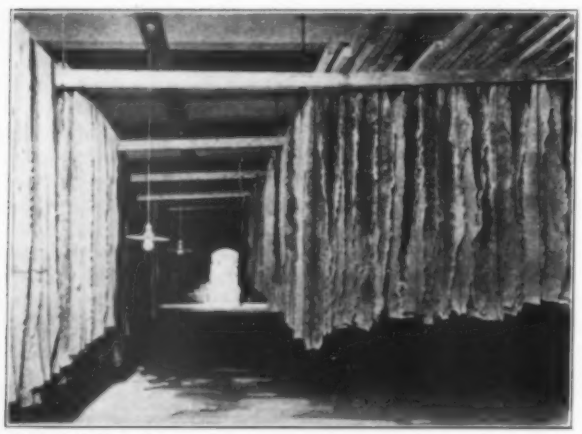
General Rubber Co.

Fig. 1. Plantation Drying House

exclude strong sunlight, the oxidizing effect of which on crude rubber is considerable.

A common defect in rubber lofts is to over-heat and under-ventilate them. These conditions are damaging to the rubber, especially if it is a soft grade, which, by softening, is liable to fall to the floor and become massed before drying. For drying soft resinous rubbers, wooden racks are provided upon which gum that is too weak to support its weight hanging, may be laid and turned from time to time to facilitate drying. Under average conditions loft-dried, thin, washed rubber should hang from 10 days to 2 weeks with free ventilation at 95 degrees to become thoroughly dried.

A ready practical test applied for determining if sheet rubber is dry consists in cutting into the sheet and noting if the knife cut reveals any white spots in the rubber. In that case the rubber in



General Rubber Co.

Fig. 2. Drying Plantation Rubber

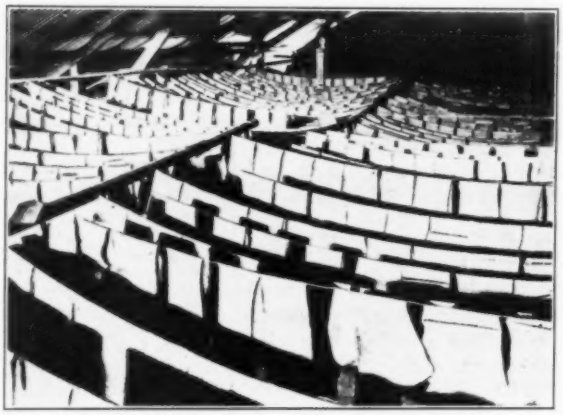
those spots is still "green" or moist, and drying should continue until the rubber shows no white spots in a fresh cut.

Ventilation

Ventilation of a drying loft is essential and should be continuous for the uninterrupted removal of the moisture laden air. Continuous ventilation can readily be provided in the case of a top-floor loft of a building by installing enough ventilators on the roof to give a frequent change of air. Such ventilators need not be of the pattern having a revolving head or of the type with top that turns like a weather-vane. In fact, a simple fixed ventilator allowing the warm air to pass out freely while excluding the rain and snow is all that is required.

Free air loft-drying while simple and inexpensive to install is not efficient. In fact, it should hardly be given consideration in a modern factory in view of the ease with which ideal drying conditions can be secured and maintained continuously under various systems of vacuum drying or drying by conditioned air.

Some of the shortcomings of the time-honored air drying system as applied for drying crude rubber include the following: It is uneconomical since only a third of the heat carried by the air is given up to the material being dried, therefore two-thirds of the fuel used is wasted. While the charging capacity of hot air with moisture is greater than one-third, the air must travel rapidly through the drying room and consequently is unable to utilize its full carrying capacity for moisture. If it is allowed to travel at



Firestone Tire & Rubber Co.

Fig. 3. Drying and Smoking Plantation Sheets

a slower rate the evaporation becomes sluggish and the drying results do not improve.

Factory Vacuum Drying

The introduction of the vacuum dryer about 1905 constituted a distinct and popular advance over the loft method for drying rubber. The latter necessarily entailed the use of much valuable space and the drying period represented a heavy investment in crude rubber while vacuum drying reduced these losses enormously. The deteriorating effects of heat and oxygen are practically removed by the use of a vacuum rubber drier.

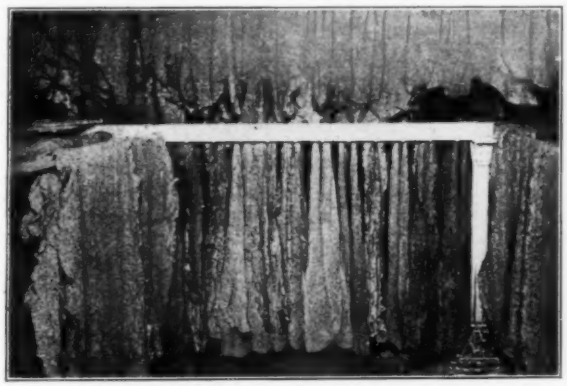
The following considerations make clear the operation of drying by vacuum. Under atmospheric conditions rapid boiling can only take place at 212 degrees F. and as the temperature decreases the drying time is extended, while under the vacuum the boiling point is greatly lowered as the barometric reading falls. Because seemingly high temperatures are used at the beginning of the drying process to expedite evaporation, the erroneous impression is sometimes formed that the rubber is overheated in the vacuum chamber, but in a properly constructed vacuum chamber with its auxiliaries, condenser and pump, properly balanced, the application of well-known physical laws absolutely prevents any overheating if only reasonable care is exercised in its operation.

The popular Devine vacuum drier, condenser and air pump as built for manufacturers of rubber goods is pictured in Figure 5. The drying chamber is cast of close grain gun-iron of high tensile strength. Its walls are provided with lugs to support the heating shelves. Four box-shaped flanged openings provide connection for

two steam, one vapor and one drain connection. The end of the chamber is faced and machined and provided with lugs, eyebolts and cast steel crank nuts for fastening the door which is mounted by two extra heavy lugs on balanced center swing hinges.

The heating shelves are made of soft open-hearth sheet steel free from waves and buckles. Their ends are arched to prevent strains, and machine beveled and joined with seamless welds of Norway iron. All mountings and fittings are of corresponding material and construction. Not only have manufacturers of rubber goods adopted this equipment but many units are installed for drying crude rubber in Brazil, Africa, Mexico and Ceylon.

The advantages of vacuum drying of rubber include uniform drying at low temperatures independent of climatic conditions; elimination of oxidation; improved elasticity of the rubber; reduction of the drying period to 1½ or 3 hours, according to the grade of the rubber; consumption of steam for power and drying is reduced to a minimum, with maximum utilization of heat units in the drying process; there is no waste of fuel; great economy of



Firestone Tire & Rubber Co.

Fig. 4. Rubber Factory Drying Room

factory space and saving in quantity of crude rubber to be carried in stock; fire hazard is eliminated and a great saving in capital is effected in buildings.

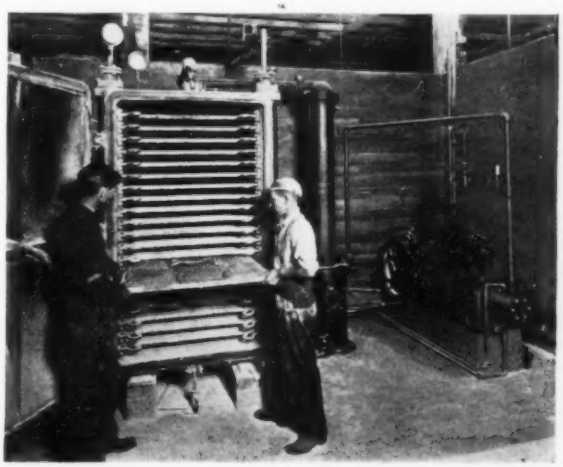
Kiln and Conditioned Air Drying

The problem of drying crude rubber in the process of its manufacture has been included in the studies of heating, ventilating engineers specializing in kiln drying of materials—consequently there have been developed important improvements over the simple air drying facilities formerly in general use. These advanced drying methods are based on the discovery that rubber can be quickly and effectively dried if exposed to properly heated and humidified air, provided that the circulation of the air is positive, rapid and uniform.

Hunter Process

One of the first systems of rubber drying based on the principle of circulating humidified air was the process patented by Hunter. In this process the rubber is subjected to an accelerated circulation of humidified air at relatively high temperatures, sometimes as high as 180 degrees F. but under ordinary atmospheric pressure conditions. The natural capacity of the air for absorbing moisture and its ability to carry the moisture away are increased many fold without injury to the material being dried. No attention is necessary during the drying period nor is the rubber injured if allowed to remain in the kiln beyond the drying time. Not only does this process save time and space, as compared with ordinary air drying or drying in a warm room at lower temperature, but oxidation is less and actual improvement is effected in milling quality of the dried rubber. Correct conditions of humidity and of temperature are maintained automatically.

In the original type of kiln under this system, gravity air circulation was made effective through the arrangement of heating coils, the system of baffles and the exhaust air system including the

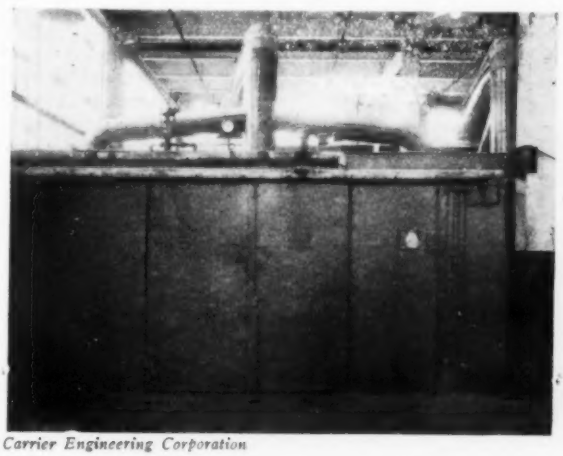


J. P. Devine Co.

Fig. 5. Factory Vacuum Drying Unit

stacks which usually are carried to the roof of the building. This type of drier has no fans or other moving parts. It is a simple practical equipment which is utilized in many installations for thawing bales of rubber, drying compounding ingredients in original containers beside the drying of washed rubber.

Plantation rubbers are dried in from 6 to 12 hours depending upon the amount of moisture to be removed and the drying conditions maintained. A convenient working schedule provides unloading and reloading the drier during the day, while the rubber is being washed, and drying overnight. Pará caucho ball and other wild rubbers are dried in 20 hours or less, as the case may be.



Carrier Engineering Corporation

Fig. 6. Kiln Drier—Hunter Gravity Type

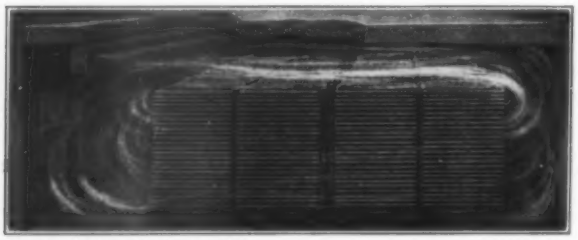
The general outward appearance of these driers is shown in Figure 6. On the front of the kiln are located steam and water connections, the hygrodeik for indicating humidity and temperature also the automatic regulating valves. Part of the exhaust stacks are shown above the kiln. In loading the drier the usual procedure is to place the washed rubber in sheets on trays of standard size, 24 by 72 inches. These are placed upon the arms of racks, each

rack carrying 30 trays. A rack under ordinary conditions will handle approximately 400 pounds of wet rubber.

The Ejector Drier

When conditioned air, automatically controlled as to temperature and humidity, was first applied to the drying of materials, it was found that the rate of drying depends less upon the moisture absorbing capacity of the air than upon its contact and velocity of impact. As a material like rubber, carrying a large quantity of surface moisture, begins to dry, it becomes surrounded by a film of relatively cool saturated air. This air is heavy and sluggish compared with warm air containing a lower percentage of moisture. If there is no air velocity the moisture in the film of saturated air is dissipated outwardly in all directions until the outer air becomes saturated and drying ceases. The rapidity with which the drier outer air will absorb moisture depends upon the intimacy of its contact with the moisture. If the movement of the air is so great that the outer air is constantly brought into direct contact with the moisture on the material, the film of saturated air is constantly broken up and displaced and drying proceeds with great rapidity and uniformity.

In the development of the ejector system drier contact and velocity of impact of the drying air have been secured. The drier has similar rack and tray equipment as the gravity circulation type but includes for its operation a motor driven blower and sprays for furnishing humidity.



Carrier Engineering Corporation

Fig. 7. Kiln Drier—Carrier Air Ejector System

A typical kiln on the ejector system is shown in Figure 7. The high velocity air streams from the nozzles and draws into circulation, by ejector effect, a much larger volume of room air causing a rapid, uniform and effective circulation. The comparatively small percentage of room air which is recirculated passes through the openings immediately beneath the nozzle duct and is automatically humidified to the proper degree, is reheated to the predetermined temperature and returned to the kiln through the ejector nozzles. An automatically controlled percentage of kiln air is exhausted. The amount of fresh air is held at the allowable minimum, conserving fuel and stabilizing the condition within the kiln.

The operation of the apparatus is entirely automatic and the drying proceeds without attention. The washed rubber is loaded on trays, usually four sheets deep, and the trays are racked in trucks as shown in Figure 7. The trucks are moved into the kiln as loaded until the kiln is filled. The doors are then closed and the apparatus put in motion. The drying cycle is about 12 hours for fine plantation rubber. The temperature and humidity of the air, the intake and exhaust are automatically regulated by means of simple and reliable compressed air controls. At the end of the drying period the steam supply to the heater is closed and the fan is operated for a short time, until the temperature within the kiln has been reduced to a comfortable degree.

The kiln system of drying is not only more convenient than an ordinary loft for drying rubber because of the fact that it can be located adjacent to the compounding and mixing departments, but it will dry more gum in shorter time because its operating condition is controllable and its product consequently of dependable quality.

Rubber Trade Inquiries

The inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.

NUMBER	INQUIRY
781	Machine for cutting sections of solid tires.
782	Manufacturers of skiving machines.
783	Books on rubber compounding and chemistry.
784	Firms handling four, six and eight ounce frictioned duck.
785	Source of supply of rubber latex.
786	Manufacturers of 5/16 round endless rubber belt, 17¾ inches in diameter.
787	Source of supply for aluminum alloy.
788	Manufacturers of rubber bath rugs.
789	Makers of rubber ankle reducers.
790	Manufacturers of rubber toys.
791	Bead cutter.
792	Fabric puller.
793	Air and steam gages.
794	German firm supplying raw rubber material.
795	Machine for cutting inner tubes into bands.
796	Belting cord which may be cut and made into auto tire boots.
797	Rubber substitute known as White Gum.

Foreign Trade Opportunities

Address and information concerning the inquiries listed below will be supplied to our readers through The India Rubber World, 25 West 45th street, New York, N. Y.

NUMBER	COUNTRY AND COMMODITY	PURCHASE OR AGENCY
19,605	Honduras. Bicycle tires	Agency
19,608	Egypt. Rubber bathing caps	Agency
19,609	South Africa. Tennis balls	Agency
19,610	South Africa. Toy balloons, surgical finger cots, and small rubber articles	Agency
19,611	Peru. Druggists' rubber sundries, and general rubber goods, including sponges, nipples, and baby pants	Agency
19,612	Austria. Toy balloons	Agency
19,613	Greece. Toy balloons	Agency
19,614	Germany. Automobile tires	Agency
19,615	Argentina. Rubber goods, especially hot-water bottles, syringes, and sponges for drug store trade	Agency
19,616	Belgium. Tennis shoes, galoshes, tight top boots, hose, etc.	Agency
19,639	Ceylon. Tires	Purchase
19,651	Austria. Rubber toys	Agency
19,659	Denmark. Black rubber raincoats, for military and police use	Purchase
19,662	India. Rubber waist belts, for men	Purchase
19,663	Netherlands. Red rubber bands	Purchase
19,688	Canada. Baby pants, rubber corsets, and druggists' rubber sundries	Purchase or agency
19,699	Brazil. Automobile cord tires, and rubber hose.	Agency
19,715	Italy. Rubber boots	Agency
19,723	Palestine. Tennis shoes	Purchase and agency
19,726	Turkey. Mechanical rubber goods	Agency
19,756	Denmark. Cheap automobile tires (seconds)	Purchase
19,811	Poland. Rubber, mechanical and technical	Purchase
19,855	Canary Islands. Automobile tires	Purchase and agency
19,856	South Africa. Flexible, metal-lined hose	Purchase and agency
19,857	Poland. Automobile tires	Agency
19,858	Canada. Golf balls	Agency
19,859	Germany. Waist belting, composition rubber	Agency
19,913	Latvia. Rubber footwear	Agency
19,929	Uruguay. Automobile tires	Agency

Customs Appraisers' Decisions

No. 51233.—Protest 982131 of Thomas W. Hall Co., Inc. (New York). Printers' blankets in chief value of india rubber are claimed dutiable at 10 per cent ad valorem under paragraph 368, tariff act of 1913, rather than at 30 per cent under paragraph 266 as assessed. Opinion by Weller, G. A. On the record and stipulated facts the printers' blankets in question were held dutiable under paragraph 368 as claimed. Abstract 49253 followed.—*Treasury Decisions*, Volume 49, No. 9, page 13.

Anti-Oxidants

The Result of Chemical Research for a Material That Would Prolong the Life of Rubber Goods

ANTI-OXIDANTS are the newest development in rubber compounding ingredients. They are organical chemical substances which when added in small percentages to a rubber mixing, serve to retard the rubber from taking on oxygen from the air after vulcanizing. Anti-oxidants thus improve the aging quality of rubber goods by preventing the well-known conditions characteristic of rubber goods that are "perished." These are loss of tensile strength, resilience, cracking of the surface, hardening of the material and disappearance of elastic quality.

Rubber manufacturers have contended from the beginnings of the industry with this tendency of rubber to perish by oxidation, generally with indifferent success. In the manufacture of rubber footwear this tendency to deterioration has been customarily held in check by the free use of soft bituminous materials which blend perfectly with the caoutchouc and protect the latter from taking on oxygen by excluding direct contact with the air. Non-oxidizing oil softeners are also used for the same purpose where the nature or the color of the goods do not admit using bitumens.

In goods of highest quality, such as rubber threads for elastic fabrics, golf balls, inner tubes, etc., bitumens and oils are not admissible and serious loss is frequently incurred by failure of the goods to withstand storage or service conditions even in temperate climates. This poor aging quality in rubber goods is a very serious drawback to satisfactory service from them in tropical countries where their short life excludes them from potentially large markets. A common practice resorted to in the tropics to preserve bulbs, tubing, water bottles, catheters, etc., is to store them under water in a dark place. By thus excluding the heat, air and light, the goods keep a long time. This method of storage is limited, however, to comparatively few among the many articles made of rubber.

In the manufacture of elastic webbing dependence is placed on the resilient quality of pure rubber thread, measuring as fine as 36 threads per inch of width. Naturally in such goods the loss due to failure of the rubber to age well is a source of great loss.

The importance of improving the aging of all kinds of rubber goods has increased with the growth of the industry, especially with regard to those rubber products of volume production made considerably in advance of use, such as footwear, fruit jar rings, heels, soles, etc.; and goods subjected to heat developed in service, such as tires and inner tubes, especially inner tubes used in bus and truck pneumatic tires. The temperature of the latter heavy duty inner-tubes may run to 200 degrees F. which would render short lived the best tube unprotected by an anti-oxidant.

The search for improved accelerators disclosed many organic substances suitable for hastening vulcanization and improving the physical properties of rubber. It practically ceased, or was reduced in intensity, a few years ago after the ultra-accelerators had been developed. Research was then begun on producing substances that would act upon rubber during vulcanization and delay or prevent completely the usual oxidation of rubber and thus increase the life of the goods. As in the case of the search for accelerators of vulcanization many anti-oxidant materials have been studied and given practical tests under controlled conditions in the laboratory and widely varying weather conditions of the temperate and tropical zones. The practical results attained are most remarkable in goods of all grades of quality, beginning with the immensely important items of tires, inner tubes and rubber footwear, and covering the full range of qualities from heels to elastic thread.

At present there are three principal anti-oxidants available, known as "VGB," "Age-Rite" and "Antox." The first two are believed to be amines while the chemical identity of the third has not yet been disclosed. All are non-poisonous, do not give off fumes in milling or calendering nor interfere with organic accelerators. Except in the case of Age-Rite they slightly discolor white goods. In any case, overdosage should not be practiced, otherwise the ultimate decline in quality of the rubber may be accelerated when decline begins.

VGB

VGB is a reaction product of acetaldehyde and aniline with a specific gravity of 1.09. It softens at milling temperature, dispersing easily in rubber and is stable in storage. It causes rubber goods to offer remarkable resistance to aging by oxidation and this effect is marked in both pure gum and heavily compounded goods.

As little as ½ per cent on the rubber content may give sufficient preservation of life to some goods. In other cases 2 or 3 per cent on the rubber may be desirable. In extreme cases, such as rubber bands, thread, etc., as high as 5 per cent may be used. If reclaimed rubber is present its rubber content should be figured as crude rubber in calculating the amount of anti-oxidant to use.

VGB has slight accelerating properties, and when used in amounts exceeding 2 per cent on the rubber will shorten the cure from 5 to 10 per cent. If no change of cure is desired the amount of regular accelerator used should be reduced to compensate for the acceleration given by the VGB.

Anti-oxidants of the amine type, such as VGB, are applicable to acid cured dipped goods not by incorporation into the rubber mix or solution but in a special way after the goods have been cured.

The method consists in making a solution of the anti-oxidant in benzol and dipping the freshly cured goods momentarily in this solution while they are still on the forms. The reason for this external application is that the anti-oxidant, being an amine, would, if subjected to curing acid, be changed into an accelerator and lose its anti-oxidant character.

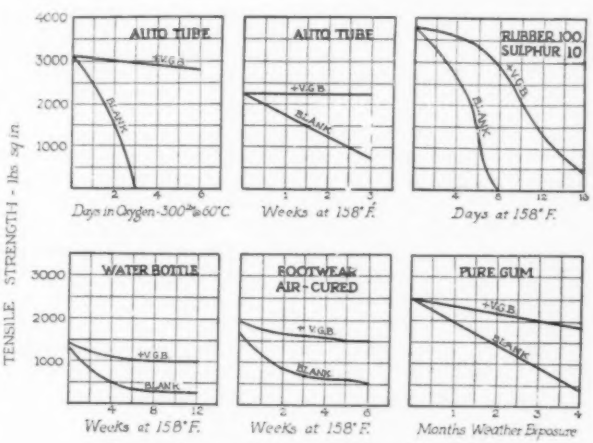


Fig. 1—Improved Aging Produced by VGB

The increased resistance to aging conferred on typical rubber products by the use of VGB is illustrated in Figure 1. This improvement is most marked as indicated by the bomb test in oxygen under pressure, the aging oven at 158 degrees F., and prolonged exposure to weather.

Age-Rite

Age-Rite is a brittle, resinous or waxy solid when cold, its melting point is so low that it fluxes perfectly with rubber and becomes uniformly dispersed in the mixing. It is non-toxic to operators handling it and has little or no effect upon the curing properties of the compound, nor does it interfere with the action of the accelerators used. It exerts a marked restraining action on the oxidation of rubber, greatly extending its aging quality. Its unique characteristics have been demonstrated in stocks for all purposes including those for tires, mechanical goods, insulated wire, dipped goods, etc. Generally only one per cent of it on the weight of rubber is needed to produce the desired results. When used in normal proportions it has very little effect on the curing properties of the stock and does not interfere with the organic accelerator present. The use of higher percentages of Age-Rite than that recommended will intensify the results of aging in upholding the tensile properties of the rubber.

A special point of advantage, noted for Age-Rite, is that stocks that scorch easily on mills or calenders can be rendered less susceptible to heat by it without changing the essential properties of the compound. Also that it gives a softness and tack to the stock that materially helps in its working by the added plasticity.

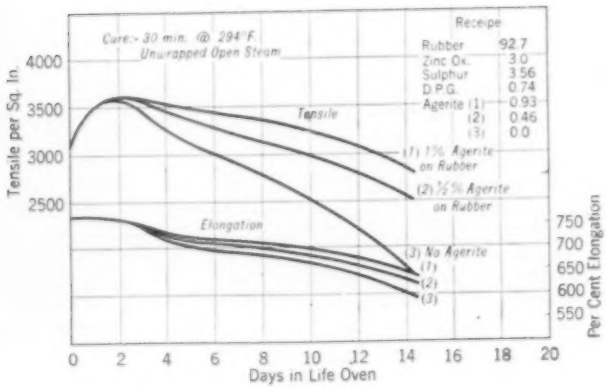


Fig. 2. Age-Rite in Tube Stock with D P G

The improvement in aging quality, tested in the aging or life oven, is shown by Figure 2, in which the curves indicate the effects respectively of ½ and 1 per cent of Age-Rite in the same inner tube.

Antox

Antox possesses the desirable general physical and chemical properties noted in connection with the mention of VGB and Age-rite. In heavily compounded stocks the use of from 1 to 1½ per cent of Antox is recommended and from 1½ to 3 per cent in inner tubes which contain a high percentage of new rubber and meet with extreme temperatures in service. Not over 2 per cent is required in passenger car tubes, but 3 per cent can be used to advantage in bus and truck tubes. Although Antox is a light colored compound, it darkens on vulcanization to such an extent that it cannot be used in white or light colored stocks.

Future Development

The discovery of anti-oxidant materials, like that of accelerators of vulcanization, is the result of chemical research in response to a technical and economic need of the industry. While the practical effects of the anti-oxidants already available are a boon to rubber manufacturers, dealers and users, within a period of a few years they will undergo progressive development just as accelerators have. Finally we may have a line of anti-oxidants especially suited to particular colors, types and qualities of rubber goods.

WORLD CENSUS OF MOTOR VEHICLES

According to the Department of Commerce there were in operation in all countries on January 1, 1926, approximately 20,799,151 passenger cars, 181,573 motor buses, 3,454,939 trucks, and 1,519,765 motor cycles. This represented an increase over the figures for January 1, 1925, of 3,273,584, a gain of 14 per cent. In this total advance, the United States was responsible for 1,208,544, or almost 67 per cent. Gains were shown for all classes of motor vehicles, particularly passenger cars.

The United States on January 1, 1926, easily ranked first in the motor world, with one motor vehicle for approximately every six inhabitants, and was using about 3½ times as many automobiles as all the rest of the world combined and over 13 times as many as the next in rank (England, Scotland, Wales, and Northern Ireland). During 1925 the total registration of motor vehicles in the United States increased about 12 per cent. Among the twelve foreign countries that showed considerable advances over 1924 in their use of motor vehicles were the following: New Zealand, 68.2 per cent increase; Germany, 65 per cent; Brazil, 52 per cent; and the Netherlands, 46.8 per cent.

THE MEXICAN GOVERNMENT HAS PLACED AN INCREASED TAX OF 10 per cent on all sales of automobiles and tires, this having become effective on March 27. The official decree states that the new tax is intended to cover the cost of extensive road construction now in progress, while it is also for the purpose of encouraging the manufacture of tires in Mexico. It is stated that the guayule rubber resources are an added inducement to tire production.

STATEMENT OF THE INDIA RUBBER WORLD

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, of *The India Rubber World*, published monthly at New York, N. Y., for April 1, 1926.

State of New York }
County of New York } ss.:

Before me, a notary public in and for the State and county aforesaid, personally appeared E. M. Hoag, who, having been duly sworn according to law, deposes and says that she is the business manager of *The India Rubber World*, and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, The India Rubber Publishing Co., 25 West Forty-fifth Street, New York City.

Editor, Henry C. Pearson, 25 West Forty-fifth Street, New York City.

Managing Editor, Henry C. Pearson, 25 West Forty-fifth Street, New York City.

Business Manager, E. M. Hoag, 25 West Forty-fifth Street, New York City.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

The India Rubber Publishing Co., 25 West Forty-fifth Street, New York City.

Henry C. Pearson, 25 West Forty-fifth Street, New York City.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by her.

E. M. Hoag, Business Manager.

Sworn to and subscribed before me this 19th day of March, 1926.

(Seal) HARRY HOAG, Notary Public.

Certificate filed in New York County, No 345. New York Co., Register's No. 7123.

(My commission expires March 30, 1927.)

Rubberizing Rayon[1]

Luster, Durability and Low Cost Have Advanced Rayon to a Permanent Place Among Textile Fabrics

THE *Textile World* says, "Rayon is here to stay. It will not replace cotton, wool or silk but will strengthen its position as one of the major textile fibers." In the remarkably short space of about four decades, rayon (artificial or fiber silk) has established a place for itself among the five leading textiles of the world, the other four being the age-old fibers, cotton, wool, linen and silk. Rayon is the only textile spun and woven for human needs which man has invented. The origin of the other fibers lies hidden in the mists of antiquity, but all were natural developments. Introduced to the world merely as a substitute for silk, at first without a name, rayon soon blossomed forth on its own merits, and has since became the third largest textile industry of the world, supplying about a hundred million pounds annually to the textile manufacturers and being interwoven with cotton, wool and silk for many purposes.

In view of this tremendous development it is a little surprising that the fabric proofers have not adopted this material more energetically as a desirable medium for stimulating their jaded industry, as there seems to be an interesting and doubtless lucrative field to be opened by the treatment of this popular fabric. Although the rubberizing trade in general has not taken up the proofing of rayon, some individual concerns have progressed through the experimental stages with it and have a real belief in its possibilities. At present rayon is only used indirectly by the rubber industry, and mostly in the manufacture of elastic webbing, hosiery, and insulating wire covering.

Rayon is a lustrous textile fiber, that is made by converting pure cellulose into thread formation, by means of chemical and mechanical processes. This definition may be amplified by stating that the fiber is formed by dissolving cellulose, either in the form of cotton linters or wood pulp, in a suitable solvent; passing this fluid through a spinning machine; solidifying the product in a fixing bath; combining and twisting the resulting filaments into a thread, purifying and bleaching this thread, and finally transferring it into the package in which it is to be sold or used.

While there are four major processes of manufacturing rayon they seem to resolve themselves into two main groups. The first group, in which three of the processes fall, may be known as regenerated cellulose, because the raw material, whether cotton linters or wood pulp, after being rendered soluble by chemically changing its structure, is regenerated or returned to its cellulose structure though not to its original form, by suitable neutralization after the formation of the thread or fiber. In this regenerated group are the viscose process, the nitro-cellulose process, and the cupro-ammonium process. The second main group which might be known as non-regenerated includes the cellulose acetate process in which the resulting rayon is not the same chemically as the original raw material but is a compound of cellulose with acetic acid groups.

The qualities which have advanced rayon to a permanent place in the ranks of textile fibers are its luster, its relatively low cost, its durability as now manufactured, and its decorative possibilities in combination with other fibers. Of course the most important of these factors is the price, for being controlled by man and not by nature, the supply can be adjusted to the conditions of demand and consequently possess a price stability impossible in cotton, wool or silk. How we wish we had a synthetic rubber with the practical characteristics of this material!

The durability of rayon is an accepted conclusion of its popularity for women's wear as it has stood up satisfactorily under severe conditions of laundering. It is no longer affected materially by water and one does not fear that rayon stockings will dissolve if they become wet from rain. Rayon does not turn yellow, even with age, as do cotton and silk. It is unaffected by perspiration and is on a par with cotton underwear in point of service. These qualities bring us back to our conclusion that rayon should be enthusiastically taken up by the rubber proofers.

Rayon may be rubberized by spreading or calendering quite in the same manner that any other fabric is treated. It offers no difficulties in handling, and on the other hand, no advantages, except as compared to silk. In this connection there is the noticeable advantage that it produces less static on the spreader with a corresponding reduction in the tendency toward spreader fires and a lesser attraction for flying dirt. The anchorage of rubber to the rayon fibers is adequate. As in the case of other fabrics square woven rayons are most suitable for spreading, but knitted rayons should not be attempted. Knitted rayons, may, of course, be calendered if occasion warrants. The bright rubber colors now so popular for many purposes show up to excellent advantage on the lustrous rayon, and if the bright sheen of the electric finish is added to the colored rubber coating, a combination results that has exceptional beauty.

Rubberized rayons may be cured by sulphur chloride, in either liquid or vapor form, without deterioration of the fabric; dry heat cures have no bad effects; and the sulphur dioxide and hydrogen sulphide of the Peachey process do not damage it. In fact it is well known that the English are a step ahead of us in having used rayon for some time in rubberized raincoat material, curing extensively by the Peachey process. It is perhaps unnecessary to say that the rayon fabrics do not in any case cause deteroriation of properly cured rubber coatings.

The colored rayons, mostly woven with cotton in stripe and plaid designs, make up very attractive raincoat fabrics. The fabrics seem to warrant the best rubber coatings it is possible to apply, a procedure that is far from being the most expensive. These high rubber content coatings allow the formation of any and all tints and colors which will delicately match or contrast with the colors of the fabric. They are very soft, flexible and light in weight, and produce a finished piece of material of remarkably low cost when the unusual quality and beauty are considered. A raincoat for women's wear of such material would certainly appeal. Knitted rayons were calendered successfully and used practically for reducing corset manufacture during the recent vogue for this article.

The only basis for any unfavorable opinion of rayon as a base for rubberizing seems to be that rayon, though practically unaffected by water, is slightly weaker in tensile strength when wet than when dry, regardless of the fact that it dries out stronger than ever. It is believed that this objection is considerably over rated, and the progress made in the rayon industry toward eliminating this condition has been so great, even during the past year, that we believe if it is not actually negligible now it will be very soon.

A raincoat manufacturer who rubberizes his own fabrics has said: "A short while ago we began experimenting with rayon for making raincoats. We have been extremely pleased with the results and we find that rubberized woven rayons can be made into raincoats that will be beautiful, practical and inexpensive. We are certain that rubberized rayon coats are a coming thing."

And it is the opinion of the writer that rubberized rayons for many purposes are impending.

[1] By S. G. Byam, Dr. Fairfield, Connecticut.

Sizes and Types of American Tires

In the Following Analysis of Tire Equipment the Motor Vehicles Indicated are Divided Into Six Groups: Motor Trucks, Motor Buses, Passenger Cars, Electric Trucks, Taxicabs, and Motorcycles

Motor Trucks

THE five tables following show the 596 types and sizes of tires used by 121 American manufacturers of motor trucks, these vehicles having capacities of from one ton and under up to fifteen tons. Opposite each tire size in all the tabulations which follow is shown the number of different vehicle types using that particular size. Pneumatic tires are indicated by the letter P, while S indicates solid tires.

Table I

1-Ton Trucks and Under

SOLID AND PNEUMATIC TIRES

Front				Rear			
S	No. of Vehicle Types	P	No. of Vehicle Types	S	No. of Vehicle Types	P	No. of Vehicle Types
32x4	1	34x4	2	32x4½	2	**34x6**	1
35x5	1	34x5	11	35x5	1	**34x5**	8
33x5	1	33x5	6	30x5	3	**33x5**	7
30x5	5	30x3½	3	34x6	1	**30x5**	7
34x6	1	32x4½	2	32x6	3	**32x4¾**	3
32x6	2	30x5	2	34x5	2	**32x5**	1
32x4½	1	34x4½	1			**34x4½**	1
34x5	2	35x5	3			**35x5**	3
		32x6	1			**32x6**	1
8 Sizes	14	9 Sizes	31	6 Sizes	12	9 Sizes	32

It will be noted that in this first classification the 30 by 5 size for front wheels is the most popular of the solid makes of tires, with the 34 by 5 and 33 by 5 for pneumatics. For the rear wheels the 30 by 5 and 32 by 6 in solid tires are preferred for six of the vehicle types, the most popular of the pneumatic tire sizes being 34 by 5, 33 by 5 and 30 by 5. Fourteen vehicle types include solids for their front wheels, twelve using them for the rear. For thirty-one vehicle types pneumatics are preferred for the front and thirty-two used them for the rear.

Table II

1¼, 1½ and 1¾-Ton Trucks

SOLID AND PNEUMATIC TIRES

Front				Rear			
S	No. of Vehicle Types	P	No. of Vehicle Types	S	No. of Vehicle Types	P	No. of Vehicle Types
34x4	8	34x5	9	34x6	10	34x5	12
34x5	12	34x4	4	34x5	10	34x6	3
33x5	2	32x6	7	33x5	1	32x6	13
32x6	10	34x2½	5	32x6	8	33x5	9
30x5	8	35x5	1	30x5	7	36x7	3
34x3½	1	33x5	8	36x6	6	36x6	6
35x5	2	30x5	10	35x5	2	30x5	4
36x4	9	36x6	1	36x7	6	34x7	3
30x6	7	36x3½	3	35x6	1	29x4½	1
36x3½	4	36x4	2	36x4	1	36x5	2
32x4½	1	34x7	2	34x7	2	35x5	1
		35x3½	1	36x3½	1	34x4½	1
				35	2		
				32x4½	1		
11 Sizes	61	12 Sizes	55	14 Sizes	58	12 Sizes	58

The sizes preferred for the front wheels of this class of trucks are: solid, 34 by 5 and 32 by 6, the pneumatic types measuring 30 by 5 and 34 by 5. For the rear wheels ten vehicle types preferred size 34 by 6 in solid tires, while ten others utilized size 34 by 5. In the pneumatic types the most popular measurements were 32 by 6 and 34 by 5. It is a significant fact that in this table 58 vehicle types favored solid tires for the rear wheels, as against 58 others preferring pneumatics, while for the front wheels 61 vehicle types represent solids, as against 55 others using pneumatics.

For this class of truck a front wheel tire, solid, measuring 36 by 4, is unquestionably favored by forty-two vehicle types, while a corresponding pneumatic type of the same measurement is preferred by thirty-two others. Solid and pneumatic tires, both measuring 34 by 4 follow next in order of preference. For rear wheels solid tires measuring 36 by 8 and 36 by 7 are apparently most popular, the same sizes being also preferred for pneumatics. The use of solid and pneumatic types is about equally divided, 78 vehicle types preferring the former class for the front wheels, and 75 others using them for rear wheels, while 72 vehicle types utilize pneumatics for the front wheels, and 78 for the rear.

Table III

2 and 2½-Ton Trucks

SOLID AND PNEUMATIC TIRES

Front				Rear			
S	No. of Vehicle Types	P	No. of Vehicle Types	S	No. of Vehicle Types	P	No. of Vehicle Types
36x4	42	36x4	32	36x8	22	36x8	23
34x4	10	34x6	1	36x4	7	34x8	5
34x6	2	36x5	7	36x10	11	36x7	10
36x5	9	34x4	14	36x7	14	36x4	3
32x6	4	34x5	8	34x8	1	36x6	7
34x7	2	36x6	6	34x5	2	36x10	7
34x5	3	30x5	1	34x7	13	34x7	9
36x3½	2	32x6	2	36x5	1	34x6	4
36x6	2	40x8	1	36x3½	1	36x5	4
30x3½	1			38x7	2	34x5	4
35x5	1			34x6	1	38x7	1
						40x8	1
11 Sizes	78	9 Sizes	72	11 Sizes 11 Duals	75	12 Sizes 20 Duals	78

For the larger trucks indicated in this classification, solid tires are evidently considered more suitable, 80 vehicle types utilizing them for the front wheels and 84 for the rear. For the front wheels, 56 vehicle types include solids of the 36 by 5 type, 20 others also using pneumatics of the same size. On the rear wheels solids

Table IV

3, 3½, 4 and 4½-Ton Trucks

SOLID AND PNEUMATIC TIRES

Front				Rear			
S	No. of Vehicle Types	P	No. of Vehicle Types	S	No. of Vehicle Types	P	No. of Vehicle Types
36x5	56	36x5	20	40x10	3	36x10	8
36x6	15	36x6	15	36x10	17	36x12	3
36x4	9	36x4	9	36x6	14	36x6	9
		36x8	1	36x12	14	36x8	6
		35x5	1	36x8	10	40x8	2
				40x5	3	36x5	7
				40x12	7	36x7	1
				36x4	3	35x5	1
				36x5	8	40x12	2
				42x9	1	36x4	1
				40x7	1	40x5	1
				40x6	2		
				34x5	1		
3 Sizes	80	5 Sizes	46	13 Sizes 23 Duals	84	11 Sizes 18 Duals	41

of the 36 by 10 type were installed for 17 vehicle types, other popular sizes measuring 36 by 12 and 36 by 6. Pneumatic tires for the rear wheels, and measuring 36 by 6, were preferred for 9 vehicle types, 8 others using the 36 by 10 variety.

Table V

5-Ton Trucks and Over to 15 Tons Inclusive

SOLID AND PNEUMATIC TIRES

Front				Rear			
S	No. of Vehicle Types	P	No. of Vehicle Types	S	No. of Vehicle Types	P	No. of Vehicle Types
36x6	58	36x5	1	40x14	22	40x12	2
36x7	9	36x6	8	40x6	20	40x7	1
36x4	3	40x6	1	40x7	12	40x6	1
36x5	12	36x7	1	36x7	6	36x6	1
34x6	4	36x8	1	36x10	2	40x14	1
34x5	1			36x14	4		
34x7	1			36x12	4		
				40x12	17		
				36x8	1		
				36x5	1		
				36x4	1		
				34x6	1		
				40x8	1		
7 Sizes	88	5 Sizes	12	13 Sizes 45 Duals	92	5 Sizes 3 Duals	6

For the largest trucks now manufactured the solid types of tires greatly predominate, particularly for rear wheels, 92 vehicle types utilizing them as against 6 using pneumatics. The most popular rear wheel tire sizes are: solids, 40 by 14 and 40 by 6, while the 40 by 12 type is preferred for pneumatics. For the front wheels 58 vehicle types utilized solids of the 36 by 6 variety, 12 others preferring size 36 by 5, while pneumatics of the 36 by 6 type were installed on 8 vehicle types. It should also be noted that duals are used for rear wheel equipment in both solid and pneumatic types of tires, the former class predominating, particularly where the largest trucks are concerned.

Motor Buses

Tire sizes used by 46 American manufacturers of 105 different types of motor buses appear in the tabulation following. It will be noted that for 92 vehicle types pneumatic tires are used for front wheels, 91 using them also for the rear. Eight vehicle types prefer solid tires for both front and rear, while for front wheels cushion tires are used by one vehicle type, two using them also for the rear. Eight sizes of pneumatic tires are being used for the front wheels of motor buses, with nine sizes for the rear, size 32 by 6 being preferred for the front wheels of 38 vehicle types, and size 36 by 6 for 33 others. For the rear wheels, pneumatic tires measuring 32 by 6 are utilized by 32 vehicle types, size 36 by 6 being preferred for 29 others. In solid tires sizes 36 by 6 and 34 by 6 predominate for both front and rear wheels. Cushion tire measurements are 34 by 5 and 34 by 7.

Table VI

Motor Buses

PNEUMATIC TIRES

Front		Rear	
	No. of Vehicle Types		No. of Vehicle Types
32x6	38	32x6	32
30x5	3	30x5	4
34x7	12	34x7	15
36x6	33	36x6	29
36x8	2	38x7	4
38x7	2	40x8	1
38x9	1	36x8	4
33x5	1	33x5	1
		38x9	1
8 Sizes	92	9 Sizes 61 Duals	91

SOLID TIRES

36x6	3	36x6	3
34x7	1	34x7	1
36x7	1	36x10	1
34x6	3	34x6	3
4 Sizes	8	4 Sizes 5 Duals	8

CUSHION TIRES

34x5	1	34x5	1
		34x7	1
		2 Sizes All Duals	2

Passenger Cars

The following table shows the types and sizes of balloon tires used by 61 American manufacturers of passenger automobiles on cars of 102 different types. It will be seen that 21 tire sizes are used, and that size 32 by 6.20 is preferred for 17 vehicle types, while sizes 33 by 6 and 30 by 5.25 are also popular.

Table VII

Passenger Cars

BALLOON TIRES

	No. of Vehicle Types
30x4.75	2
33x6	12
33x6.20	4
30x5.25	12
30x5.77	9
31x5.25	8
33x6.75	7
32x6.20	17
34x7.30	1
29x4.40	3
33x5	6
32x6	4
30x4.95	2
30x3½	3
29x4.75	2
30x6	1
33x5.77	1
32x4½	3
32x5.77	2
33x4½	1
29x4.95	2
21 Sizes	102

Taxicabs

Sixteen American manufacturers of taxicabs are using 11 sizes of tires on 21 different types of cars, the most popular tire size being 33 by 4½, used for 7 vehicle types.

Table VIII

Taxicabs

PNEUMATIC TIRES

	No. of Vehicle Types
30x5	2
33x4½	7
30x5.77	1
30x3½	1
32x4	2
30x6½	1
29x4½	2
30x5¼	1
32x6.20	1
33x4½	2
27x4.5	1
11 Sizes	21

Electric Trucks

Tire sizes used by eight American manufacturers of 45 different types of electric trucks are indicated in the tabulation following, solid tires predominating, 12 sizes being used for the front wheels of 37 vehicle types, and 16 sizes for the rear wheels of 39 others. Tire sizes 36 by 6 and 36 by 3½ for the front wheels are among the most popular, with 36 by 4 and 36 by 5 for the rear. Five sizes of pneumatic tires appear as front wheel equipment for 5 vehicle types, and four sizes for five others. Cushion wheel measurements include two sizes of 36 by 5 and 36 by 6 for two vehicle types, both rear wheel tires being duals.

Table IX

Electric Trucks

SOLID TIRES

Front		Rear	
	No. of Vehicle Types		No. of Vehicle Types
34x4	5	34x5	3
34x5	1	34x6	2
34x6	1	36x8	2
34x7	1	36x12	1
36x3½	6	36x14	1
36x4	5	36x4	8
36x5	4	36x5	7
36x6	6	36x6	4
36x7	3	40x14	1
34x3½	1	36x3½	1
32x3½	3	40x5	1
32x3	1	40x6	2
		32x4	2
		36x7	2
		36x10	1
		36x7	1
12 Sizes	37	16 Sizes 12 Duals	39
	PNEUMATIC		
20x5	1	30x5	1
29x4½	1	29x4½	1
32x4	1	32x4½	1
32x4½	1	33x5	2
33x5	1		
5 Sizes	5	4 Sizes	5
	CUSHION		
36x5	1	36x5	1
36x6	1	36x6	1
2 Sizes	2	2 Sizes Both Dual	2

Motorcycles

The tabulation following indicates the types and sizes of tires used by 10 American makers of motorcycles for 19 different types of machines. It will be noted that the two most popular tire sizes measure 26 by 3.3 and 27 by 3.8.

Table X

Motorcycles

PNEUMATIC TIRES

	No. of Vehicle Types
27x3½	2
26x3.3	6
25x2½	2
26x2	1
25x3.8	3
27x3.8	5
6 Sizes	19

The above data represent abstracts from specifications appearing in a recent issue of *Automotive Industries*. While of interest to the rubber industry in general, the compilations also show conclusively the many tire sizes now in use, and the urgent need for some system of tire standardization.

Meeting of Committees D-13 and D-11

Committees D-13 and D-11 of the American Society for Testing Materials met in Providence, Rhode Island, March 18 and 19, 1926. Several other committees of the society held sessions there at the same time. An able local committee, headed by David C. Scott of Henry L. Scott & Co., aided by the Providence Chamber of Commerce carried out most successfully plans for the entertainment of the visitors.

At the sessions of Committee D-13, a number of technical papers were presented. The first of these was entitled "The Effect of Jaw Characteristics upon the Tensile Strength and Elasticity of Tire Cord" by Professor George B. Haven, of the Massachusetts Institute of Technology and chairman of Sub-Committee III on Testing Machines. This paper described a series of tests made upon five different types of testing machine jaws to establish a relationship between their indications of strength and elasticity and the same quantities as derived from a cord under ideal conditions.

A brief paper descriptive of a wear-test machine developed in the laboratories of the United States Testing Co., 340 Hudson street, New York, N. Y., was presented by A. E. Davieau.

"A Universal Test for Textile Yarns; A Suggestion" was presented by W. F. Edwards. This contained results of tests which indicated the possibility of using the serigraph method as the foundation for a universal test for strength and stretch of yarns and a charting method for recording the relation of load and stretch for every load up to rupture.

Committee D-11 on Rubber Products is devoting much attention to studying performance tests. Reports on various investigations now in progress were read at the meeting. One of these was on the repeated flexure test. Eight machines will soon be in operation in various laboratories carrying on a cooperative series of tests. The accelerated aging or life test is also being studied. In this test the rubber is artificially aged by introducing oxygen under certain conditions. Thirty laboratories are cooperating in the study of this test. Valuable information will doubtless be gained on the suitability of rubber for certain purposes by the development of the abrasion test. Eighteen machines of 5 or 6 different types are now being operated in various laboratories to determine which is the most acceptable.

The life of the tread and other compounds can now be predicted to a considerable extent in advance, eliminating the former necessity of maintaining by tire companies fleets of test cars to determine tire tread mileage.

Another instance that might be cited is the testing of rubber belting. A machine has now been developed on which pieces cut from belting may be run back and forth over small diameter pulleys which run much faster than pulleys in ordinary use, and consequently the destruction of the belt is brought about in a period of eight hours, whereas the same destruction would not normally take place for months or years. By the use of these various accelerated tests it is possible to try out a number of rubber compounds and thus fix upon one for a given purpose which will be most economical of rubber, the importance of which is emphasized at the present time due to the high cost of raw rubber.

RUBBER INDUSTRY OF LATVIA

The rubber industry of Riga, Latvia, was chiefly represented in pre-war days by the "Provodnik" factory, where about 20,000 workmen were then employed. That plant is now closed, and unlikely to reopen. The present plants include the "Quadrat" factory, with 500 workmen, and three other plants of moderate size, where the output is mainly rubber footwear. Some tires, technical goods, and toys are also produced. Imports of rubber goods had a value in 1925 of $349,102, as against $318,000 in 1924 and $320,000 in 1923.—Department of Commerce.

Drainage and Terracing

As Related to the Health of Hevea Rubber Trees

By Vincent Sauchelli, B.Sc.

At one time in the early history of plantation rubber it was assumed that Wickham had collected rubber seeds from the wet, low-lying soils of the Amazon basin. Accordingly, when it came to selecting sites for rubber plantations in the Malay Peninsula during the grand boom days just preceding the Great War, planters in the Far East laid out their estates in the low coastal plain. Today many of these original plantings are to be seen in Selangor and Perak of the Malay States. The trees grew remarkably well at first, but, owing to the high water, they did not develop the long tap root natural to Hevea. As a consequence they became weakened at the base and during a heavy wind storm acres of these trees would be blown over. The writer has personal recollection of one such incident where 26 acres of low-lying rubber were blown down during a wind storm in Selangor. More than eighty per cent of these tree-victims either had no tap root or the tap root was diseased, owing to the presence of a high water table.

U. S. R. Plantations, Inc.

A Typical Example of Terraced and Drained Land Ready for Planting Hevea Rubber

From the best planting experience we know that proper drainage is essential to the welfare of the Hevea rubber tree. Hence a discussion of the problem is always timely for its importance cannot be stressed too often. Millions of dollars have been spent throughout the plantation areas of the Far East on this one estate practise.

In all new undertakings by American capital in rubber plantations, provision should be made for drainage, and plenty of it, in drawing up estimates. For such low areas will be found and will have to be planted up and it can be done profitably under a good system of drainage.

Evaporation a Factor

It has been determined by the United States Forestry Bureau that the amount of moisture which a forest gives back in the form of evaporation amounts to 75 per cent of the water fallen as rain. Evaporation from a bare soil is about 30 per cent of the precipitation. We know also that local streams and springs are more diminished by water used up by trees than would ever be the case if the trees were absent. And another consideration in forest land or plantations is that about 30 per cent of the rainfall never reaches the ground owing to its being used up as water caught in the leaves, branches, trunks and so on, from which it evaporates directly. All these considerations have a very direct bearing on the number of drains and silt pits that can be cut in rubber estates in the interest of soil water conservation.

What Drainage Is

Drainage is the removal of surplus water from the soil whether accomplished by nature or by artificial channels. Surplus water is the excess above that needed from day to day for the use of plants and that stored in the lower strata of the earth as a reservoir during periods of drouth. Drainage has chiefly to do with soils saturated with water the year round as swamps and those saturated for brief periods only. Effective drainage is essential and fundamental to all other soil practices; without it, such operations as chankolling, forking, liming and fertilizing may be considered as losses.

Some of the results of drainage are: (1) It makes the soil firmer; (2) it improves the granulation of the soil particles; (3) it improves the aeration of the soil; (4) it promotes the growth of desirable soil organisms such as nitrifying bacteria and prevents development of injurious fungus species; (5) it increases the available food supply of the plant; (6) it enlarges the feeding area of the roots since roots can penetrate deeper and wider; (7) it increases yields and improves the sanitary conditions of the area.

Soil Water

Most of the water on an area has come in the form of precipitation though it often occurs that seepage and underground flow from ponds on higher land may also contribute to its presence.

When adequate drainage has been provided for, the amount of water left in the upper soil layer 24 hours after a rainfall should be represented by that capillary film water only which clings to the soil particles by virture of its surface tension. The rest of the rainfall ought to have passed out of the soil through underground channels and into the surface streams or ditches nearby, while a goodly amount should have percolated to the lower zones to become the stationary supply needed in dry spells.

Water, as it passes through the soil, occupies air spaces, the air of which, for the time being, has been displaced. Air in soil is as essential to plant growth as any other important factor. A protracted occupation of air cells by water is harmful to plant growth. This happens when no ready means for the flow of water have been provided for on an area. A soil intermittently saturated with water indicates imperfect drainage. Imperfect drainage brings about evils connected with insufficient air supply and the injurious results to the plant growth are in direct relation to the length of occupation of the air cells by water. The most evident result of such an undesirable state is a sour, wet, uncultivable soil affording good conditions to fungus growth and bearing stunted, sickly, devitalized trees. The numerous root diseases of rubber trees on low wet clayey soils no doubt are favored by the above condition. The purpose of artificial drainage is to help nature, where necessary, by supplementing natural existing channels by others so constructed and placed as to facilitate the escape of all water not needed in the soil. Nature's methods, as far as practicable, should in all cases be imitated.

Open Drains

Open channels, whether those made by nature or those constructed by man, receive water which flows over the surface of the ground and that which passes through the soil. In a sandy soil type having a gravel subsoil it is found that a system of open drains is usually sufficient to afford an effective drainage. The open porous nature of such a soil allows free percolation of the soil water from the surface through the upper layer into the gravel and thence laterally into the channel.

In the case of a heavy clay or loam more often as not such open drains prove inadequate. Water percolates very slowly through such closely packed soil. A further fact against the flow of water is that the soils of the open ditches in heavy clays or loams suffer what is known as "Puddling," as the water in the channel flows by.

The net result is imperfect drainage with an open system. Underground drainage with tiles would have to be supplemented. Of course in rubber estates tile drainage is out of the question. The tiles become choked with roots, which gain entrance through the smallest crevice. Subsoil dynamiting has been found useful for this soil type. Du Pont farm dynamite is one of the best means of loosening up the firmly packed subsoil, allowing percolation and aeration and at the same time not disturbing the roots. When the soil is absorptive and fairly level, water begins to flow off only when the soil is completely saturated. At this point all further rain water flows off over the surface as excess and a movement of the water in the soil takes place in the form of seepage to the nearest ditch.

If we now consider a rather dense soil, having a smooth hard surface and considerable slope in a region of heavy precipitous rainfall, it is evident that most of the downpour rushes off over the surface into the ditches or gullies before the soil has had time to absorb it. This, of course, is an undesirable condition. The rainfall has had no opportunity to soak through to replenish moisture in the lower strata from which a demand is made in times of insufficient rainfall. To overcome this condition open drains or ditches and terraces with catch drains are constructed in such a way and in such places as to prevent the too rapid removal of drainage water. The purpose of such terraces and catch drains or blind drains and other channels is to retain rainfall, and to permit it to be absorbed gradually into the lower root feeding area.

Soil Bacteria and Drainage

Let it also be emphasized in this connection that an equally important object of drainage is to place the soil in a condition to receive and retain the highest possible amount of capillary moisture as well as to remove water which, if retained, would prove injurious. Water, while moving through the soil, causes no injury; the effect of stagnant water upon the conditions of the soil and upon the plants is both immediate and pronounced. While water slowly percolates through the soil, air and heat can then circulate in the open spaces left by it and the result is a stimulus to plant life and soil nitrifying bacteria. If the air spaces become saturated with water this aeration is stopped, causing injury and death to the micro-organic life of the soil. Since plant growth is so intimately bound up with bacterial life in the soil, the obvious result of such a saturated condition is injury to the plants growing thereon.

Another phase of the problem not so often emphasized is the conservation of soil moisture. Much is said of soil drainage or the removal of water; but there is also the other side, the retention of moisture. A clay soil probably cannot be "over drained." Other soil types can be. The problem with such soil types is to work out the adjustment of depth, distance apart, size and so on of the drains so that while surplus water is removed, provision is also made for the retention of sufficient moisture which may serve as a reserve supply in times of drouth.

Silt Pitting

On very steep slopes silt pitting is difficult if not impossible. In such cases, it has been found advisable to put in bigger sized pits along the top contours and at shorter distances apart than required on more gentle slopes. The dimensions of such "bigger sized pits" will be 3 feet wide, 2 feet deep and the length will vary according to the contour from 12 to 18 feet. The pits are dug along contours which have been carefully laid out by a road tracer. The pits are separated one from another along the line of contour by a strip of undug soil 2 to 3 feet long.

General Remarks on Drainage and Terracing

It is very difficult to make hard and fast rules in this work owing to the extreme variations met with everywhere. A good knowledge of the rainfall of the district must be had preliminary to planning these drainage systems as well as a knowledge of the soil type or types affected. To know the monthly or seasonal rainfall is not enough; one must know whether the rain comes down in two or three hours or in half an hour. The drains must be dug to catch and hold the maximum amount of water falling in the shortest time.

Valleys or gullies are the natural water outlets. Main drains should be placed through these as straight as possible and made big enough to lead off any volume of rain and seepage water resulting in 24 hours. Lateral or tributary drains should never be made too long; the lower section nearing the main drain should always be made wider than the upper; that is tapering off toward the blind end. The sides or banks of the drains are sloped in the ratio of one horizontal to one and one-half vertical. The meeting of the lateral with the main drain is best made at a sharp angle. Water flowing into the main from a lateral at the sharp angle has a better chance of carrying off silt and debris than if at right angles. Valleys usually suffer from the evil results of stagnant waters as explained above. This is owing to the presence in most cases of a hard impervious layer of clay in the subsoil.

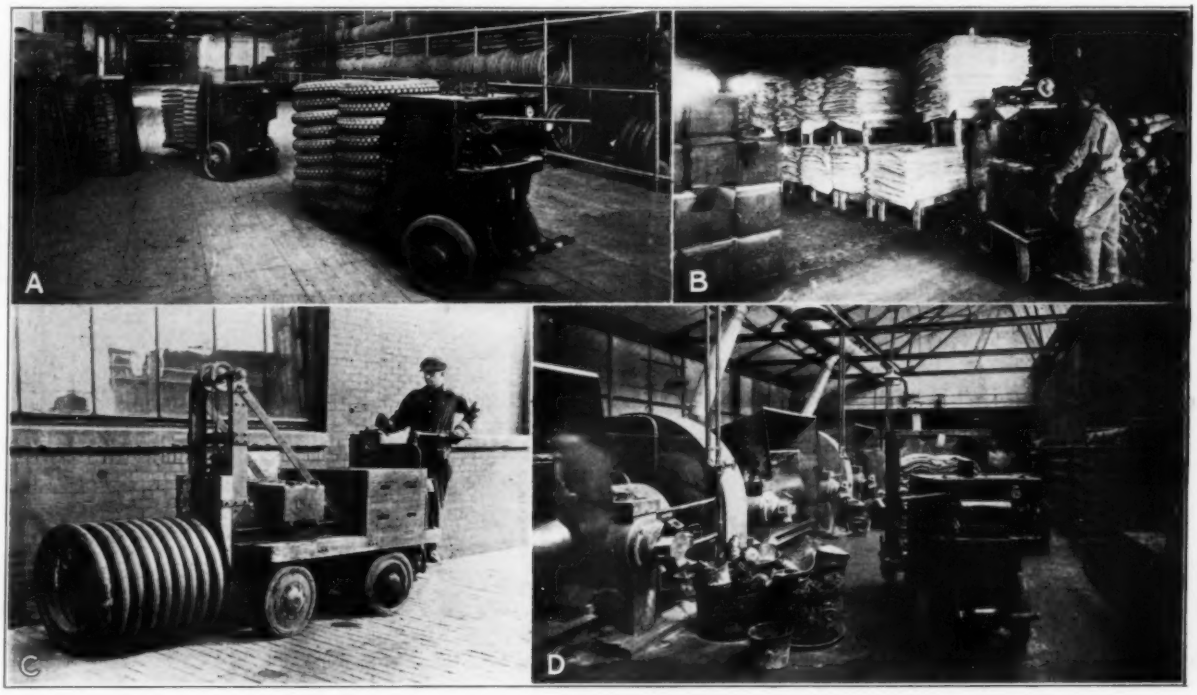
After heavy wintering all drains should be cleaned out. A season of heavy rainfall or severe storms damages drains considerably and it always pays to have regular inspection and repair of the drains. It is not too much to say that inspection and repair of drains should be done as routine once every six months, preferably between the months of heavy rains.

Handling Rubber Materials Economically[1]

The Present Practice of Representative Concerns Indicates That Power Driven Mechanical Equipment Is Supplanting the Wheelbarrow and Hand Truck in Rubber Mills

BEFORE rubber compounds appear as manufactured goods much work has to be done upon them. Comparatively few of the products of modern industry require more handlings per unit manufactured than those made primarily of rubber. For a ton of production, between 10 and 20 tons of material—sometimes more—have to be moved.

Up to within a few years hand truckers and wheelbarrow pushers were largely depended upon to keep material flowing through process. When the wage of laborers doing this work rarely exceeded twenty cents per hour, the outlay involved was not considered excessive. Many problems involved in efficient production were considered more urgently in need of attention. As a consequence effort centered largely on improvement in strictly production methods and equipment and in the development of compounds promising greater economies in manufacture as well as improvement in quality.



A—TRUCKING FINISHED TIRES. B—TIRE LIFT TRUCK STACKING CRUDE RUBBER WITH SKIDS. C—LIFT TRUCK HANDLING TIRE CORES. D—TRACTOR AND TRAILER HAULING MATERIALS BETWEEN DEPARTMENTS.

Rubber Industry Is Progressive

Because the rubber industry is progressive, efforts of this sort are as much in evidence at present as in the past but, in addition, there is now a marked interest in the reduction of overhead through the application of modern equipment to the so-called non-productive operations—notably material handling. Consequently the cost of moving stock is being consistently lowered. In the elimination of avoidable outlay for this work the industrial electric truck has been a very important factor. A survey recently made of six typical plants in various sections of the country indicates that power driven, mobile equipment is being depended upon to an increasing extent for moving material at minimum expense.

For indicating definitely how many moves have to be made by stock in a typical production process, let us consider the tire plant. From receiving platform to storage, raw rubber, shoddy, oil, chemicals, fabric and shipping containers are constantly flowing. Some of the rubber has to be moved to the washing mills, thence to driers and either direct to the batch room or to washed storage. At the batch room all of the materials to be milled must be assembled before being carried to the mill room. Following milling, storage is frequently provided again before moving the rubber compound on to a warming up mill where it is prepared for calendering fabrics or for extrusion into treads, etc. Following calendering, the rolls of fabric must be moved to the cutting department, thence to the assembly room or building department. Treads, sundry small parts, and rubber cement must also be supplied to the building department. Then again the flow is continued on to the vulcanizers, to inspection and finishing, wrapping, packing and shipping. Incidentally, molds are moved to and from storage, scrap returned to the start of the process, books and fabric rolls returned to the cutting room, a considerable bulk of waste is

[1] By Harold J. Payne, of the staff of The Society for Electrical Development, 522 Fifth avenue, New York, N. Y., a non-partisan, non-profit organization having as one of its primary functions the dissemination of authoritative data on the performance and operation of electrical equipment.

removed from the plant and deliveries of special commodities from the store room have to be provided.

Synchronized System Ideal

Obviously the ideal solution for such a series of operations would be a system of continuous conveyers or other equipment whereby complete synchronization might be obtained. Unfortunately, it is true in making tires, as in most other process industries, that succeeding steps in manufacture do not lend themselves well enough to an inflexible series of material handling links to allow the use of a continuous system. In one relatively new tire plant where flexibility was recognized to be of prime importance, the electric industrial truck was selected for unloading, distributing and storing raw material for handling in the mill room, for moving calendered fabric, for moving steel rims and rubber to the solid tire department as well as for several operations in the pneumatic tire building and in the inner tube departments.

What Has Actually Been Accomplished

Another large rubber manufacturing plant represents a very high development of electric truck and tractor interplant transportation. Tires, rubber shoes, inner tubes, hose, heels and sundries are included in the line of products of this concern—a total number of items running into thousands. About 50 buildings are used in storage and manufacturing so that some material is moved as far as a mile within the plant. To get out production over a period of 24 hours between 9,000,000 and 9,500,000 pounds are moved an average distance of 1,787 feet.

The equipment for this work consists of 18 tractors, 47 2-ton lift trucks, 670 trailers and 7,000 skids. Thirty-five spare batteries have been provided so that it is possible to keep the entire fleet operating continuously if necessary. Ordinarily, however, each unit is in service only 16 hours out of the 24. On the first shift the entire fleet is operated, on the second about 48 units are kept moving and on the third about 17.

Records indicate that an average load for the trailer train pulled by each tractor is between 4,500 and 4,800 pounds; that the average load for the lift type truck runs between 1,500 and 1,600 pounds. Unusually light loads and extremely heavy loads vary widely from these figures, however. On carrying molds, for instance, from storage to the vulcanizing room, lift trucks rated to carry 2 tons sometimes carry more than 3 tons regularly. On the other hand in carrying milled rubber to storage, a trip is sometimes made for a single batch.

An average of 25 tons is moved by each elevating platform truck in 8 hours; in the same period the tractor averages to move 75 tons. Against this performance there is charged, in addition to the time of the driver, a figure of less than 30 cents per hour of operation. This fixed charge includes interest, taxes, depreciation, insurance, power and maintenance. The fixed charge against the entire skid equipment in the plant amounts to $1.30 per hour.

Savings Are Large

In some instances it is a matter of record that single trucks have released 20 men or more for other work. In moving tire molds between machine shop, storage and the vulcanizing department, 22 men were formerly required but a single truck now does the work. In this case all of the molds are stored on skids thus eliminating all necessity for rehandling and affording a maximum economy in operation. On one long haul a tractor has reduced the number of men required per shift from 22 to 2. An elevating platform truck in the yard has reduced the number of laborers from 34 to 6 per shift—a net of 28.

Conservatively figured, the net annual earning of the fleet is $538,000 per year. This is based on the assumption that each unit works for two shifts out of the day and that its earning averages to be only that of five men. In addition to the direct savings made, however, it is important to consider those economies indirectly resulting from the use of power driven trucking equipment. Briefly summarized these include: (1) Decrease in labor turnover through making working conditions more agreeable and taking the backache out of heavy handling jobs; (2) increase in effective storage and manufacturing areas through the elimination of congestion made possible by the rapid movement of heavy loads; (3) simplification of inventory, where skids and containers are used, eliminating waste of time formerly required to check up stock in the plant; (4) elimination of time wasted formerly by skilled operators kept waiting for work or to have finished jobs taken away; (5) decrease in the stock necessarily held on hand through increased speed in moving it through process; (6) periodic service in unusual jobs where the application makes unnecessary taking a large number of men from other jobs to help out in emergencies; (7) adherence to production schedules and elimination of shutdowns due to the congestion formerly created by inadequate facilities for trucking.

These considerations have been introduced, not so much for their specific significance as for their general importance. In many plants it has been found that indirect savings have exceeded large direct savings when both were definitely evaluated.

Operation of the Fleet

An important feature to be noted in connection with the operation of the particular fleet discussed above is that a standard battery is used that fits any truck or tractor in the plant. At the charging room racks have been erected at various levels so that no lifting is required for transfer of batteries in any of the various models of electrics that are in use.

Another point that evidences the thought that has been devoted to the efficient functioning of the fleet is a system of signal lights on the ramps which are too narrow to allow comfortable passing of two machines. A switch has been placed near the foot and again near the upper end of these grades that throws on two red lights—one at the top and the other at the bottom. A lighted signal keeps the runway clear for the trucker using it until he is off.

The question frequently arises in the application of storage battery equipment as to the proper type to use on a given job. Since no two jobs present identical working conditions it is impossible to make any answer that is generally useful. Here the lift trucks are used quite largely in intra-department service while the tractor is employed for haulage between departments. This does not hold absolutely as is shown by the fact that the average length of haul for either type of equipment is known to be nearly the same. In general, however, larger tonnages can be moved economically between departments than within departments—and the tractor is capable of moving considerably more at a trip than any other electric industrial trucking equipment. It is pertinent to observe also, at this point, that a skid costs only $1.35 a year to have in the plant and hence can be used economically for storage whereas it would be hard to defend the use of trailers over long periods in the same way.

The men operating the trucks and tractors in this fleet are paid almost entirely on a piece work basis. A slip with duplicate entries indicating destination, source and weight is attached to each load carried. Upon delivery, the consignee receives one portion of this slip, the trucker the other. Shipments are never lost and despite the very large tonnage moved, an accurate double check on the location of all material in the plant is kept constantly. Those truckers that carry empty skids, waste and broken boxes or trailers have to be paid by the men who are moving pay loads. This arrangement gives the men a sense of responsibility with the result that they cooperate willingly in order to keep their earnings at a maximum—a maximum which is considerably in excess of the wages of hand truckers.

Other Plants Use Trucking Equipment

Other users of this type of equipment in rubber plants have developed similar practices and have made similar economies. At one plant where a fleet of 21 machines is used it is claimed that the wages of 1,000 men are earned. While the details of maintenance, control and the exact nature of operations vary, the fixed charge against the equipment remains nearly constant. Overhead bridges, perhaps on a grade, are used for connecting up buildings in some cases, while in others tunnels under the plant are used for runways—in still others, city streets are largely used for intra-plant hauling. Savings depend largely upon the length of daily service, usually ranging from $6,000 to $25,000 per unit or even more in cases where close supervision is provided and the equipment is allowed to function to maximum advantage.

The increased use of this equipment in the rubber industry marks a distinct trend that is destined to continue. The time has passed when overhead can pass unanalyzed and unacted upon. As competition becomes increasingly keen and as the cost of doing manual work rises there cannot fail to be a growing interest in ways and means for stopping avoidable losses. To that end electric industrial trucking equipment has already made a satisfactory record and on the basis of that record it is safe to prophesy that as the importance of handling materials mechanically is realized, it will be given new opportunities for demonstrating its usefulness in rubber factories.

A New Method of Steam Piping Applied to a Tire Vulcanizer

THE constantly increasing demand for tires through increased sales of motor vehicles has stimulated the research departments of tire manufacturers, so that today greater tire mileage and lower costs are possible. This is largely due to automatic instruments that control curing temperature within one degree and the time to within fifteen seconds. Moreover, compounds have been perfected so that tire mileage can be predicted to within close limits.

However, the best compounds, manufacturing specifications, and equipment for controlling the time and temperature cannot function successfully unless the steam line is properly designed. A thermometer registers only the temperature at its bulb and an automatic temperature regulator depends on the temperature at its bulb for its operation, therefore it is necessary that the heater and steam pipe layout should be designed to give as nearly as possible uniform distribution of temperature in the vulcanizer during the curing period.

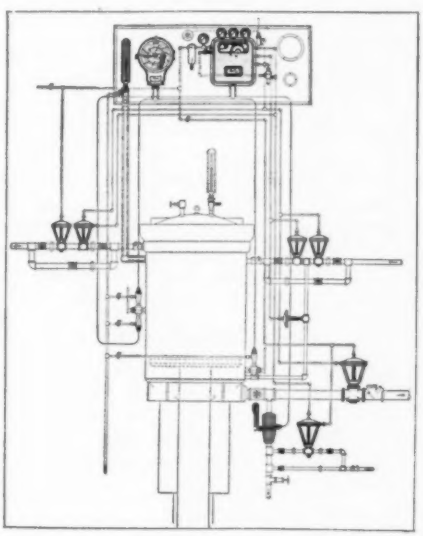
The size of the steam line must be large enough to raise the temperature of the vulcanizer, molds, tires and other equipment in the vulcanizer to the required temperature in a specified time. This time period is comparatively short. The steam inlet is sometimes located at the top, in the center, or near the bottom of the vulcanizer. Regardless of its location, a pipe large enough to raise the temperature in the vulcanizer in the specified time is very often too large for the holding period. This is true because the steam entering the vulcanizer during the holding period is reduced in velocity when the volume flow is reduced.

Reduction in velocity of steam flow causes stratification of temperature and air pockets, with the result that uneven temperature exists in the vulcanizer. This condition is aggravated to a more serious extent when air bags are used, because of air leaks. Consequently, it is impossible to have each of a stack of tires vulcanized to the same degree, regardless of the thermometer indicating or recording uniform temperature, which the regulator is controlling. Nor can this condition be detected if the bulbs of the thermometer and regulators are located at the same point.

To overcome these conditions the arrangement shown in the illustration has been perfected, whereby sufficient steam is supplied to raise the temperature in the specified time. Also to retain the flow at high velocity creating rapid circulation, evenly distributing temperature throughout the vulcanizer.

When the heater is started up, steam is admitted through a large supply pipe and a smaller auxiliary line. The larger line is connected at the top of the vulcanizer and the smaller line at the bottom. Both lines are fully open if the temperature is one degree below schedule. However, as soon as the scheduled temperature is approximated the larger valve closes first and what steam is necessary to maintain the schedule is automatically controlled and admitted at high velocity through the restricted orifice at the bottom of the vulcanizer. If at any time during the curing period the small opening is insufficient to supply the necessary rate of steam flow the larger supply is automatically engaged and makes up for this deficiency.

By actual test it was shown that about 65 per cent of the total steam used is necessary to raise the temperature of the vulcanizer and its contents to the curing temperature, while the remaining



Taylor Instrument Co.'s System for Automatically Controlling Tire Vulcanizers

35 per cent is consumed in completing the curing period. The particular schedule called for "raise to 290 degrees in 15 minutes and hold for 1 hour and 30 minutes." Before using the newly developed arrangement, variation of as much as 14 degrees existed in the vulcanizer, while with the new system this was reduced to 2 degrees.

The illustration shows the complete arrangement for automatically indicating, recording and controlling the time and temperature of the heating schedule. The device automatically admits cooling water and at the end of a predetermined time shuts off the water and signals that the process is finished. It should be noted that the bulbs of the indicating, recording and regulating instruments are located at different points on the water.

What the Rubber Chemists Are Doing

The Economical Use of Reclaimed Rubber as a Substitute for New Rubber[1]

By J. M. Bierer and C. C. Davis, Boston Woven Hose & Rubber Co., Cambridge, Massachusetts

THE price of plantation rubber is not stable and must be expected to fluctuate in a manner not easily foreseen. This makes difficult the manufacturing problem of maintaining uniformity of quality in rubber products in the most economical manner. In a rising rubber market it is only by reducing the proportion of new rubber and by the aid of reclaimed rubber that uniform quality can be maintained without increasing the cost.

At least four methods may be followed to produce rubber goods more economically: (1) Synthesize new rubber of a quality which based on its cost is a satisfactory substitute for natural rubber. (2) Improve greatly the quality of reclaimed rubber so that the rubber component of the reclaimed rubber is more nearly the equal of new rubber. (3) Determine the relative value of new rubber and existing reclaimed rubbers and with these data utilize new and reclaimed rubber in the most economical manner. (4) Utilize new compounding methods and materials in conjunction with any of the foregoing.

The synthesis of new rubber is in an uncertain state. Artificial rubber similar to natural rubber has, we believe, never been made, nor has a commercial process for making the inferior artificial product yet been developed to compete with plantation rubber. Attempts to regenerate new rubber from scrap rubber have given products which fall short even of artificial rubber in quality. Wiegand has suggested that the better application of physics to compounding gives a means of formulating rubber compounds of a quality as yet unattained. May we not look forward to the day when new rubber itself has been so improved that properties superior even to those foreseen by Wiegand can be attained with the combined aid of this supertype of new rubber and his suggestions? It is solely with finding a temporary means for utilizing in the most economical manner materials already available that the present paper deals.

Properties of Tire Reclaim Used

The reclaimed rubber used in all the experiments was prepared from black automobile tires. The whole tires with the beads removed were cracked, devulcanized with aqueous sodium hydroxide, washed free of the latter, dried and refined. The following constants were obtained for the finished reclaim:

Color	Black
Specific gravity	1.18
Acetone extract	7.5 per cent by weight
Ash	20 per cent by weight

Cured in a press with the addition of five per cent of sulphur only, the following physical tests were obtained:

Minutes Cured	Temperature °C	Per Cent Ultimate Elongation	Tensile Strength lbs. per sq. in.
20	142	410	780
30	142	450	850

Cured with the addition of 3 per cent sulphur, 0.5 per cent diphenylguanidine and 3 per cent zinc oxide the physical tests were as follows:

Minutes Cured	Temperature °C	Per Cent Ultimate Elongation	Tensile Strength lbs. per sq. in.
20	142	400	1330
30	142	320	1150

[1] Presented before the Division of Rubber Chemistry, American Chemical Society, at the Akron Meeting, February 22 and 23, 1926. Printed by courtesy of *Industrial and Engineering Chemistry*.

There are many rubber compounds in which the desired quality can be obtained with the use of new rubber alone or with new rubber and reclaimed rubber or with reclaimed rubber alone, in each case, of course, with addition of accessory ingredients. The desired quality may be the resistance to abrasion, the ultimate elongation, strength, resilient energy or any other useful index of quality. The compounds which are amenable to replacement represent important commercial rubber products. With the substitution of reclaimed rubber for new rubber there must be simultaneous elimination of inert filler.

Partial replacement of new rubber by reclaim is illustrated in the following compounds:

	I	II	III
Smoked sheets	100.	75.	50.
Reclaimed rubber	...	50.	100.
Whiting	100.	55.	10.
Sulphur	5.	5.	5.
D. P. G.	0.5	0.5	0.5
Zinc oxide	5.	5.	5.
M. R.	20.	20.	20.

If part or all of the new rubber in Compound I is replaced by a two-fold weight of reclaimed rubber, with no other change, the physical properties are altered. But if at the same time a certain proportion of whiting is eliminated, depending upon the quality of the reclaimed rubber, giving Compounds II and III, all three compounds have practically the same stress-strain curves at certain cures. Not only is the quality similar when new, but also after aging in oxygen under 300 pounds per square inch pressure for 24 hours at 60 degrees C.

	IV		V
Smoked sheets	100.		50.
Reclaimed rubber	...		100.
Whiting	200.		110.
Sulphur	5.	5.	5.
D. P. G.	0.5	0.5	0.5
Zinc oxide	5.	5.	5.
M. R.	20.	20.	20.

Likewise the cheaper compounds, IV and V, with and without reclaimed rubber were found to give the same stress-strain curves at the appropriate cures, not only when the stocks were new, but also after aging for 24 hours in oxygen under 300 pounds per square inch pressure at 60 degrees C. Compounds of this character are similar in general form to mechanical goods compounds of medium quality, and so represent the use of reclaimed rubber in mechanical goods.

Value of Reclaimed Rubber

To determine the value of the reclaimed rubber in these compounds it is necessary to calculate its cost when the compounds not only cost the same but have the same quality. Compounds with and without reclaimed rubber which have the same quality are assumed to have the same volume cost. Knowing the cost of each ingredient in the compound, the cost of reclaimed rubber, the only unknown, can be calculated for any cost of rubber.

When new rubber is A units per pound, the reclaimed rubber used in the foregoing experiments has a value of 0.495 A. This means that reclaim is less economical if it is above 0.495 A per pound, of the same value at 0.495 A per pound and more economical below 0.495 A per pound. With new rubber at $1.00 per pound, the reclaimed rubber would have a maximum value of $.495.

This comparison is based on duplication of stress-strain curves (resilient energy), including ultimate elongation and tensile strength, and does not consider comparative resistance to abrasion, the hysteresis effect, electrical properties or any other of a number of properties other than the aging. The same relative values of new rubber and of reclaimed rubber do not necessarily apply to these other properties, and since any one of them may be as important as the resilient energy, a series of comparative tests must be carried out for each property concerned.

Tire Treads

In dealing with tire treads, the first consideration is the resistance to abrasion. For this reason abrasion tests are shown in all cases. The graphs are constructed on an empirical basis with the units increasing with increase in resistance to abrasion. The resistance to abrasion was compared only among tire compounds which were found to give satisfactory aging properties. In other words, if a tire compound containing reclaimed rubber wore as well as the corresponding base rubber compound simply because it was overcured and harder, the results were considered to be faulty. Unless a compound containing reclaimed rubber showed practically as good aging properties as the base rubber compound when tested for 48 hours in oxygen under 300 pounds per square inch at 60 degrees C., its abrasion was not compared with its corresponding compound containing no reclaimed rubber. In other words, no results are given for compounds of unsatisfactory aging properties.

As a basis for comparing the resistance to abrasion, those compounds with satisfactory aging properties which showed the highest proof resilience were chosen. With new rubber at $.75 per pound and caustic whole tire reclaimed rubber at $.09, the compounds containing reclaimed rubber are in all cases cheaper than the base compound with new rubber alone, and so where the abrasion is as good with reclaimed rubber, the latter can be used economically. In view of the fact that the abrasion tests were compared on the basis of the maximum proof resilience of compounds which were of satisfactory aging quality, both of which properties were practically the same when the abrasion was the same, the hardness is not included in the results. Moreover the difference in the hardness between the base compounds containing new rubber alone and those with reclaimed rubber were no greater than the differences among tires of an individual manufacturer.

In the United States Bureau of Standards, Technological Paper No. 294, Holt and Wormeley attempted to show that "tests on tire treads containing reclaimed rubber indicate that if reclaimed rubber is used the resistance to wear is lowered roughly in proportion to the quantity used." Furthermore it is stated that with 25 per cent reclaimed rubber, the resistance to abrasion is about 70 per cent as good as the corresponding tread stock containing rubber alone. The compounds used by Holt and Wormeley to make these comparative tests were Compounds VI, VII, VIII and IX. These, it is stated, decrease progressively in their resistance to abrasion.

	VI	VII	VIII	IX
Smoked sheets	61.1	51.3	45.925	41.175
Reclaimed rubber	....	10.	18.	25.
Sulphur	3.	3.	3.	3.
Hexa	0.4	0.45	0.45	0.45
Palm oil	2.	3.	3.	3.
M. R.	5	5.	5.	5.
Zinc oxide	12.5	11.25	8.625	6.375
Carbon black	16.	16.	16.	16.
	100.	100.	100.	100.
Cost per cu. ft.	$35.10	$31.00	$28.00	$25.90

The costs given are the costs per cubic foot with rubber at $.75 per pound and alkali reclaimed rubber at $.09 per pound, values not decidedly different from the present market price of rubber and the manufacturing cost of caustic whole tire reclaimed rubber. It is further stated that Compound VI with new rubber alone was formulated by two of the largest tire manufacturers, and so it may be regarded as a properly balanced tire tread of good wearing qualities.

The most obvious defect in the method pursued by Holt and Wormeley is the progressive substitution of new rubber by nearly the same weight of reclaimed rubber. Since a pound of reclaimed rubber is not equivalent in value to a pound of new rubber, the progressive replacement of new rubber by reclaimed rubber, that is, of a superior ingredient by a smaller volume of an inferior ingredient, without further essential change, will obviously give progressively decreasing quality. The evident object of the work, as stated, was to determine "whether an economic gain would result from the greater use of reclaimed rubber in tires, to which end tests were conducted for the purpose of determining the influence of reclaimed rubber on the resistance to wear." The experiments, however, show only that both the quality and the cost decrease, and do not show the relation between the decrease in each.

Importance of Method of Compounding

It is possible to replace a certain amount of new rubber in Compound VI of Holt and Wormeley by twice the amount of reclaimed rubber and obtain compounds commercially as good as those containing new rubber alone and which are cheaper as well. Contrary to their results, which indicate that reclaimed rubber cannot be substituted for new rubber even in small amounts without loss of resistance to abrasion, it is possible to replace a small amount of rubber by reclaimed rubber and by other suitable changes, to make compounds which will wear as well and give the same stress-strain curves.

	VI	X	XI	XII	XIII
Smoked sheets	61.1	58.	55.	52.	49.
Reclaimed rubber	....	6.	12.	18.	24.
Sulphur	3.	3.	3.	3.	3.
Hexa	0.4	0.4	0.4	0.4	0.4
Palm oil	2.	1.6	1.	0.6	....
M. R.	5.	4.	3.	2.	1.
Zinc oxide	12.5	11.	9.6	8.	6.6
Carbon black	16.	16.	16.	16.	16.
	100.	100.	100.	100.	100.

Compounds X, XI, XII and XIII are unlike those of Holt and Wormeley, and comprise a series in which the weight of new rubber removed is replaced by twice its weight of reclaimed rubber. Assuming an original rubber content of the reclaimed rubber of 50-60 per cent, this two-fold replacement represents roughly a substitution for the original rubber of the same amount of reclaimed rubber-equivalent. The technical values of this group compared with Compound VI are shown in Figures 1 and 2.

Typical Tire Treads With Reclaim

Passing to other tire tread compounds of prominent manufacturers, and replacing new rubber by a greater amount of reclaimed rubber, we have Compounds XIV to XXI inclusive.

	XIV	XV	XVI	XVII
Smoked sheets	51.	48.4	46.	43.4
Reclaimed rubber	....	5.	10.	15.
Sulphur	2.	2.	2.	2.
Ethylidene-aniline	1.	1.	1.	1.
Mineral oil	1.5	1.5	1.5	1.5
M. R.	5.	5.	5.	5.
Zinc oxide	20.5	17.	13.5	10.
Carbon black	19.	20.1	21.	22.1
	100.	100.	100.	100.

	XVIII	XIX	XX	XXI
Smoked sheets	58.	55.1	52.2	49.3
Reclaimed rubber	....	5.8	11.6	17.4
Sulphur	1.75	1.75	1.75	1.75
D. O. T. G.	0.5	0.5	0.5	0.5
Mineral oil	1.25	1.25	1.25	1.25
M. R.	4.	4.	4.	4.
Zinc oxide	18.5	16.9	15.4	13.8
Carbon black	16.	14.7	13.3	12.
	100.	100.	100	100.

The plotted results of the tests in Figures 3 to 6 show that part of the new rubber in these tire tread compounds may be replaced by reclaimed rubber without materially diminishing the resistance to abrasion or changing greatly the stress-strain curve.

provided that new rubber is replaced by a correspondingly greater amount of reclaimed rubber.

Stocks of the Highest Quality

Though the next formula is not strictly a tire tread formula, it is of even better quality and will probably outwear any commercial tire tread. In its essential form it was suggested by one of our leading rubber technologists as a compound of extraordinarily high resistance to abrasion. Replacing rubber as before progressively by greater amounts of reclaimed rubber, the series represented by Compounds XXII to XXV inclusive were tested, resulting in values shown in Figures 5 and 6.

	XXII	XXIII	XXIV	XXV
Smoked sheets	60.	57.	54.	51.
Reclaimed rubber	....	6.	12.	18.
Sulphur	2.4	2.4	2.4	2.4
Ethylidene-aniline	0.45	0.45	0.45	0.45
D. P. G.	0.45	0.45	0.45	0.45
Stearic acid	0.3	0.3	0.3	0.3
Mineral oil	0.3	0.3	0.3	0.3
Zinc oxide	12.	8.	4.	....
Carbon black	24.1	25.1	26.1	27.1
	100.	100.	100.	100.

Carbon Black and Zinc Oxide

To meet the objection that the compounds containing reclaimed rubber were as good as the compound containing only new rubber because the carbon black was increased and the zinc oxide diminished, two similar series were tested. In Compounds XXII, XXVI and XXVII the ratio of zinc oxide and carbon black was kept constant and in Compounds XXII, XXVIII, XXIX and XXX the zinc oxide was actually increased at the expense of the carbon black.

	XXII	XXVI	XXVII
Smoked sheets	60.	57.	54.
Reclaimed rubber	....	6.	12.
Sulphur	2.4	2.4	2.4
Ethylidene-aniline	0.45	0.45	0.45
D. P. G.	0.45	0.45	0.45
Stearic acid	0.3	0.3	0.3
Mineral oil	0.3	0.3	0.3
Zinc oxide	12.	11.	10.
Carbon black	24.1	22.1	20.1
	100.	100.	100.

Test results are shown in Figures 7 and 8.

	XXII	XXVIII	XXIX	XXX
Smoked sheets	60.	57.	54.	51.
Reclaimed rubber	....	6.	12.	18.
Sulphur	2.4	2.4	2.4	2.4
Ethylidene-aniline	0.45	0.45	0.45	0.45
D. P. G.	0.45	0.45	0.45	0.45
Stearic acid	0.3	0.3	0.3	0.3
Mineral oil	0.3	0.3	0.3	0.3
Zinc oxide	12.	13.	14.	15.
Carbon black	24.1	20.1	16.1	12.1
	100.	100.	100.	100.

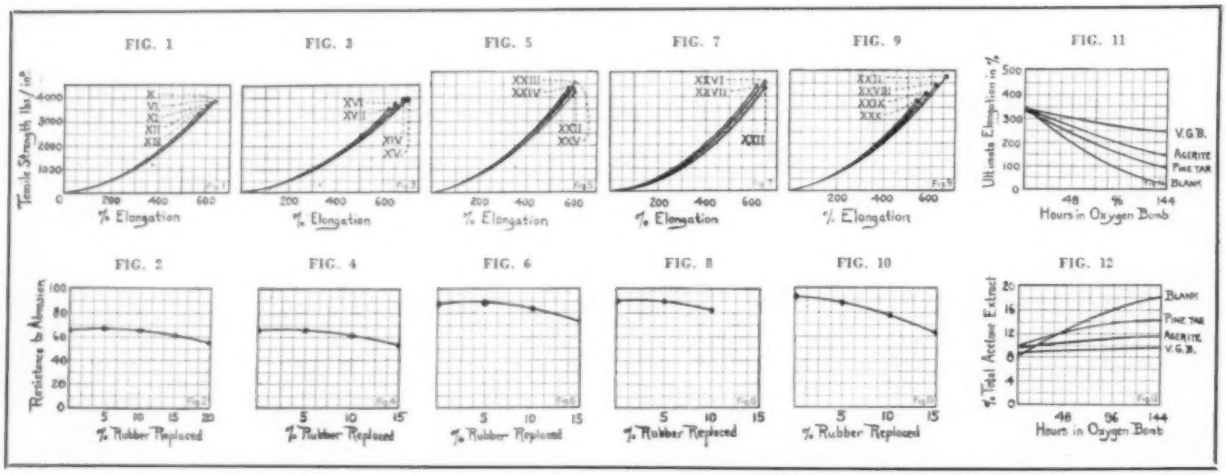
Figures 7 and 8 give the tests of the second series and Figures 9 and 10 those of the third series. The results make it evident that in replacing new rubber by reclaimed rubber in tires, better results can be obtained by maintaining a high proportion of carbon black and reducing the zinc oxide than by reducing the carbon black for the sake of retaining the original amount of zinc oxide. Compounds XXII, XXIV and XXV containing reclaimed rubber are superior to compounds XXVIII, XXIX and XXX and in general the greater the proportion of zinc oxide used at the expense of carbon black the poorer the resistance to abrasion.

Heat Conductivity

One of the advantages claimed for zinc oxide in tire treads is that it gives better heat conductivity than carbon black. For this reason it was of interest to determine the heat conductivity of Compounds XXII, XXIV and XXV. The latter two have less zinc oxide and more carbon black than Compound XXII. Nevertheless the heat conductivities of the three compounds were found to be as follows:

Heat Conductivity in B. T. U. per 24 hours per square foot per 1 inch thickness per 1 degree F.

Compound	Value
XXII	31
XXIV	33
XXV	36



The tests were performed by the Department of Physics, Massachusetts Institute of Technology.

In spite of Compounds XXIV and XXV containing more carbon black, and less zinc oxide than Compound XXII, their heat conductivities were slightly superior. This renders it possible in replacing new rubber by reclaimed rubber in a tire to increase the carbon black and decrease the zinc oxide within reasonable limits without danger of materially poorer heat conductivity.

The Possibility of Using Reclaim

The method described may be regarded as replacement of part of the new rubber by approximately the same volume of rubber component in the reclaimed rubber, with a change in the pigments, fillers, curatives and accelerators to balance the loss of quality due to the fact that a given volume of old rubber component in the reclaimed material is not of the same quality as a like volume of new rubber.

Inasmuch as rubber products with compounds containing reclaimed rubber are often just as satisfactory as those containing only new rubber and are lower in cost, it would be unfortunate if large consumers, such as the United States Government, should

fail to recognize the proper place of reclaimed rubber in their specifications for rubber goods.

Influence of Anti-Oxidants

One of the chief obstacles to the use of inner tube reclaimed rubber is the fact that most grades are very unreliable in their aging properties. Any means therefore of improving the aging is of great advantage in extending the use of inner tubes, which are potentially of great value. Compound XXXI is a cheap red compound containing a high proportion of devulcanized red inner tubes.

	XXXI
Smoked sheets	6.
Reclaimed red inner tubes	60.
Sulphur	2.5
D. P. G.	0.25
Paraffin wax	1.
Red iron oxide	2.
Zinc oxide	2.
Whiting	26.25
	100.

To this compound additions of the following preservatives were made in the proportions indicated to ascertain their respective effects on the aging quality: pine tar, 3; Agerite, 1; V. G. B., 1.5.

Figures 11 and 12 show the results of aging in oxygen under 300 pounds per square inch pressure at 60 degrees C. for increasing periods, with and without the use of an anti-oxidant. Four separate compounds are shown, three of which contain an anti-oxidant. It is evident from the changes in the ultimate elongation and in the acetone extract after aging that an anti-oxidant improves so greatly a compound containing reclaimed inner tubes that reclaimed rubber of this type may become thoroughly reliable.

Influence of Selenium

If instead of vulcanizing with sulphur alone, selenium is also used[2] there occurs an extraordinary increase in the resistance to abrasion. Illustrated in Compounds XVI, XXXII, XXXIII and XXXIV.

	XVI	XXXII	XXXIII	XXXIV
Smoked sheets	46.	46.	46.	46.
Reclaimed rubber	10.	10.	10.	10.
Sulphur	2.	2.5	2.	2.
Selenium	....	....	0.5	1.25
Ethylidene-aniline	1.	1.	1.	1.
Mineral oil	1.5	1.5	1.5	1.5
M. R.	5.	5.	5.	5.
Zinc oxide	13.5	13.5	13.5	13.5
Carbon black	21	21.	21.	21.
	100.	100.5	100.5	101.25

Relative Resistance to Abrasion

Cured Min. at 142° C.				
20	34	48	81	90
30	57	63	89	97
45	64	72	90	86
60	63	72	72	55

When the sulphur in Compound XVI is increased, the resistance to abrasion is also increased, but if this additional sulphur is replaced by the same weight of selenium, the increase in resistance to abrasion is far greater. If the replacement is carried out in the proportion of 2.5 to 1 (the ratio of the atomic weights of selenium and sulphur) the resistance to abrasion becomes extraordinary. A comparison of the resistance to abrasion of the four compounds at different cures shows that with the aid of selenium, Compound XVI containing considerable reclaimed rubber becomes of greater resistance to abrasion than the best compound shown previously XXVI, though the former is far poorer without selenium.

Selenium therefore offers a means of obtaining in a given compound a higher resistance to abrasion than has been attainable heretofore, or of obtaining the same resistance with a large reduction in the percentage of rubber and with a money saving.

[2] Permission to use selenium was given by C. R. Boggs and the Simplex Wire & Cable Co., Cambridge, Massachusetts, where it was first discovered that selenium greatly increased the resistance to abrasion of rubber compounds and where the first patent on selenium as a vulcanizing agent is held.

Chemical Patents

The United States

ACCELERATOR. A nitrogenous organic material combining two dissimilar organic groups.—Paul M. Faulsen, Perth Amboy, New Jersey, assignor to The Roessler & Hasslacher Chemical Co., New York, N. Y. United States patent No. 1,575,865.

ACCELERATOR. A nitrogenous organic material characterized by a group containing hydrogen carbon radical.—Carl S. Williams, Woodbridge, New Jersey, assignor to The Roessler & Hasslacher Chemical Co., New York, N. Y. United States patent No. 1,575,884.

ACCELERATOR. A reaction product of an aldehyde ammonia with a mustard oil.—N. A. Shepard and Stanley Krall, assignors to The Firestone Tire & Rubber Co., all of Akron, Ohio. United States patent No. 1,576,072.

ELECTRIC RESISTANCE ELEMENT. This comprises a mixture of finely divided graphite and partially vulcanized rubber in different proportions.—Wolfgang Otto, Neumuhlen, Germany, assignor to The Nederlandsche Technische Handel Maatschappij, S'Gravenhage, Netherlands. United States patent No. 1,577,981.

RUBBER COMPOSITION. A rubber substance is produced by first very slowly mixing a quantity of rubber with a quantity of pulverized hard stone continuing the operation until each particle of stone is fully covered with rubber, then cooling the mixture, adding further quantity of one of the ingredients and mixing with materials for vulcanization.—Matthias M. Haw, Brooklyn, New York. United States patent No. 1,578,121.

RUBBER COMPOSITION. Containing 60 to 100 parts by weight of carbon or lampblack to each 100 parts by weight of crude rubber together with the necessary vulcanizing agents.—William B. Wiegand, Montreal, Canada. United States patent No. 1,578,875.

DIPPED GOODS COMPOSITION. Caoutchouc latex to which sulphur and a metallic oxide are added. When applied by dipping the water content is evaporated, an accelerator is introduced into the film obtained by absorption from its external surface, followed by vulcanization at a suitable temperature.—Giuseppe Venosta, Milan, Italy. United States patent No. 1,579,169.

WATERPROOFING FOR MATCHES. Beeswax ¼ pound, sealing wax ¼ pound, rubber cement ½. After these have been mixed by heat sufficient gasoline is added to reduce the compound to a liquid.—Henry D. Schmidt, Lake Alfred, Florida, assignor of one-fourth to W. F. Hutchinson, and one-fourth to B. O. Carn, Jr., both of Winter Haven, Florida. United States patent No. 1,579,401.

WATERPROOFING COMPOUND. Prepared by heating and dissolving colophony in gasoline, diluting and cooling with additional gasoline, melting and dissolving paraffin in gasoline and mixing the whole with rubber cement. —Clarence D. Shaffer, assignor to Textile Leather & Metal Preserver Co., both of Kalamazoo, Michigan. United States patent No. 1,579,403.

The Dominion of Canada

HARD RUBBER VARNISH. A solution of at least 20 parts of sulphur on 100 parts of rubber and containing not less than 10 per cent of solid materials, at least 15 per cent of combined sulphur and no free sulphur. The solution has a viscosity of approximately 1-10 Engler at 50 degrees C., and produces on drying a film practically free from stickiness.—The Canadian Consolidated Rubber Co., Ltd., Montreal, assignor of Willis A. Gibbons, Little Neck, Long Island, and Thomas V. Binmore, Long Island City, both in New York, U. S. A. Canadian patent No. 259,008.

VULCANIZING PROCESS. This consists in incorporating with a mixture of rubber the zinc-alpha-phenil-biguanidine as an accelerator, a vulcanizing agent and vulcanizing the mixture.—Ernest Smith, Manchester, England, assignee of Egidio Romani, Turin, Italy. Canadian patent No. 259,053.

TREATING RUBBER. This method consists in milling into rubber an activated compounding ingredient one portion of which is saturated with one fluid, and another portion of which is saturated with a second fluid which combines with the first fluid to form a vulcanization accelerator.—The Goodyear Tire & Rubber Co., assignee of Clarence McKinley Carson, both of Akron, Ohio, U. S. A. Canadian patent No. 259,405.

The United Kingdom

WATER-PAINTS. Ordinary commercial distempers or water-paints, in paste or solid form, are diluted with latex instead of water. The latex may be emulsified with oily ingredients such as a vegetable oil or petroleum jelly.—T. M. Rigby, Mill House, Middlewich, Cheshire. British patent No. 245,540.

BITUMINOUS COMPOSITIONS. The adhesiveness of bituminous compositions containing clay, rubber, etc., is increased by the addition of residual products of the manufacture of gutta percha known as gutta percha pitch, or those of balata, or low grade rubbers as pontianak, palembang or accra.—Universal Rubber Paviors, Ltd., Canning street, Audenshaw, near Manchester, and A. E. Brown, Kavanaugh Lodge, Brentwood, Essex. British patent No. 246,065.

ELECTRO-DEPOSITING RUBBER. A modification of the process of depositing rubber from emulsions, such as latex, by electrophoresis comprises using substances which prevent the emission of gas at the anode.—Anode Rubber Co., Ltd., 15, Throgmorton avenue, London. British patent No. 246,532.

PLASTIC COMPOSITION. A rubberized fabric, mineral matter, and a bituminous cement are mixed together simultaneously, or in any order, and agitated, the rubberized fabric being subjected at some stage of the process to a temperature sufficient to soften the rubber.—W. J. Mellersh-Jackson, 28 Southampton Buildings, London (C. G. Warren, 41 Middlesex Road, Newton, Massachusetts, U. S. A.) British patent No. 246,548.

ELECTRIC CABLE INSULATION. The rubber compound comprises from 8 to 18 per cent of sulphur and is heat-treated at not less than 200 degrees C. This vulcanized mass is plastic at lower temperatures than that of the heat-treatment, and after its application hardens without further vulcanization.—Western Electric Co., Ltd., Connaught House, Aldwych, London. British patent No. 246,663.

CLEANING AND PRESERVING RUBBER. Emulsions of castor oil in water or solutions of it in alcohol are applied by immersing or rubbing the surfaces of rubber sheets or rolls used in printing.—O. Strecker 6, Olbrichweg, Darmstadt, Germany. British patent No. 246,721.

Editor's Book Table

Book Reviews

"ALLEN'S COMMERCIAL ORGANIC ANALYSIS, FIFTH EDITION, VOLUME IV. RESINS, RUBBER, GUTTA-PERCHA, ESSENTIAL OILS." P. Blakiston's Son & Co., Philadelphia, Pennsylvania. Cloth, 648 pages, 6 by 9 inches. Indexed.

THIS fourth volume in the latest revision of Allen's Commercial Organic Analysis comprises Special Characters of Essential Oils, by E. K. Nelson and G. A. Russell; Resins, by Ernest J. Parry; India Rubber, Gutta-Percha, Balata, and Allied Substances, by John B. Tuttle, and Constituents of Essential Oils and Allied Substances, and the General Characters and Analysis of Essential Oils, By Ernest J. Parry.

The chapter on Rubber, Gutta-Percha and Balata covers 61 pages. It presents the latest approved analytic methods by a recognized authority in rubber analysis. The discussion of methods, and the significance of the various tests on vulcanized rubber are full and complete, accompanied by copious reference to original sources and the same applies to the briefer references to gutta-percha, balata and allied gums.

"A BIBLIOGRAPHY ON RESEARCH." National Research Council, Division of Engineering and Industrial Research, 29 West 39th street, New York City. Paper, 46 pages, 6 by 9 inches, with table of contents.

This bibliography lists selected articles appearing in the technical press of 1923, 1924 and 1925. The major subdivisions are classified and the grouping of references designed to serve for the field of industry as a whole. In the section devoted to rubber 13 references are cited.

"COLLOID SYMPOSIUM MONOGRAPH." Edited by Harry N. Holmes. Assisted by Harry B. Weiser. Published by The Chemical Catalog Co., New York, N. Y., 1925. Cloth, 323 pages, 6 by 9 inches. Illustrated.

This book includes 22 papers read at the Third National Symposium on Colloid Chemistry held at the University of Minnesota, June 17-19, 1925. All are of interest and importance, giving attention to both theory and application. A chapter of notable interest to rubber chemists is that on "The Plasticity of Rubber and Its Sols," by W. J. Kelly. It is a mathematical discussion of a method which gives values of fluidity within about 1 per cent.

"THE CHEMISTRY OF RUBBER MANUFACTURING." By Lothar E. Weber, Ph.D. Published 1926, by Charles Griffin & Co., Ltd., London, and J. B. Lippincott Co., Philadelphia, Pennsylvania. Cloth, 372 pages, 6 by 8½ inches. Author and subject indices. Illustrated.

This work by its authorship, accuracy and practical value will meet the needs and expectations of rubber chemists, technologists and manufacturers. The volume is based on the fifth edition of "The Chemistry of Rubber" By C. O. Weber, father of the author, but is essentially a new work covering up to date the advances in the chemistry of rubber manufacturing of the past 20 years, since the date of the earlier work mentioned.

The chapters on crude rubber cover latex, preparation of crude, coagulation, and composition and properties of the product. Vulcanization and the theory of vulcanization are followed by chapters on synthesis of rubber and the chemical and physical examination of crude rubber. Inorganic compounding ingredients are divided into groups and systematically treated as to origin, composition, manufacture, tests and uses in the rubber industry. Reinforcing agents, sulphur and sulphur chloride, and organic compounding ingredients are covered in separate chapters. The organic accelerators of vulcanization of chief commercial importance are listed by classes and their utilization and theory of action discussed. The chief reclaiming processes are outlined, also the examination and uses of reclaims and the nature of devulcanization.

The last third of the volume is devoted to methods, in detail, for the chemical examination of vulcanized rubber. The book closes with an appendix on solvents and one on textiles. Ample bibliographies accompany the text.

New Trade Publications

"SPRAY COOLING." THIS PAMPHLET OF 24 PAGES ISSUED BY Yarnall-Waring Co., Chestnut Hill, Philadelphia, Pennsylvania, shows the structural details of the Yarway involute spray nozzle and Yarway spray pond fittings. Data is given on spray pond design and performance and many installations are pictured. Spray cooling has special interest in the rubber industry where cool water is essential for controlling the temperatures of mills, calenders, etc.

"MARION EAGLE BRAND WIRES, CABLES, CORDS" IS THE TITLE of an illustrated catalog issued by the Marion Insulated Wire & Rubber Co., Marion, Indiana.

AN ILLUSTRATED BULLETIN OF TWENTY PAGES ENTITLED "De Laval Mine Pumps" describes equipment manufactured by the De Laval Steam Turbine Co., Trenton, New Jersey.

"ROYLE STRAINING MACHINES FOR RUBBER COMPOUNDS" IS THE title of an illustrated bulletin being issued by John Royle & Sons, Paterson, New Jersey.

AN ILLUSTRATED BULLETIN ENTITLED "DO YOU USE YOUR PLANT Newspaper?" contains data regarding recording instruments as manufactured by the C. J. Tagliabue Manufacturing Co., 18-88 Thirty-third street, Brooklyn, New York.

"THE OAK LEAF" IS THE TITLE OF AN ILLUSTRATED HOUSE organ now being published by The Oak Rubber Co., Ravenna, Ohio.

THE JOHN ROBERTSON CO., 127 WATER STREET, BROOKLYN, NEW York, manufacturer of hydraulic presses and pumps, for the rubber industry, is issuing an illustrated leaflet, descriptive of the company's most important products.

THE INTERCONTINENTAL RUBBER CO., 100 WEST TENTH STREET, Wilmington, Delaware, has prepared, in addition to its annual report, an interesting and attractively illustrated booklet, descriptive of the guayule rubber industry.

"AGITATING AND MIXING MACHINERY FOR ALL PURPOSES IN ALL Industries" is the title of an illustrated catalog being issued by The Patterson Foundry & Machine Co., East Liverpool, Ohio.

A LITTLE ILLUSTRATED BOOKLET ENTITLED "MUCH OBLIGED!" is being published by The B. F. Goodrich Rubber Co., Akron, Ohio. The text has been written by Irvin S. Cobb, the bulletin also containing the "Silvertown Courtesy Code for American Motorists." Illustrations are by Tony Sarg.

IN AN ILLUSTRATED BOOKLET ENTITLED "TWO HUNDRED MILLION Bubbles" The Oak Rubber Co., Ravenna, Ohio, tells its story which dates from the company's establishment in April, 1916.

ECONOMIC SURVEY OF PHILIPPINES

A survey of economic conditions in the Philippine Islands, and possibly Hawaii and Guam, has been considered advisable by President Coolidge, who is sending to these islands for that purpose Carmi A. Thompson, of Ohio. The visit, which is said to have no political significance, is being made on behalf of the President for the purpose of observing the educational and policing systems of the Philippines, and their financial affairs as they relate to the government, as well as economic conditions in general.

Abstracts of Recent Articles

INTERNAL MIXERS FOR RUBBER STOCKS. The use and economy of internal mixers and roll mixers compared. Their comparative costs and efficiency. Advantages and disadvantages of internal mixers compared with roll mixers.—P. S. Shoaff, *Industrial & Engineering Chemistry*, April 1, 1926, 345-346. Illustrated.

ECONOMICAL USE OF RECLAIMED RUBBER AS A SUBSTITUTE FOR NEW RUBBER. Discussion of the technical problem of replacing new rubber by reclaimed rubber.—J. M. Bierer and C. C. Davis, *Industrial & Engineering Chemistry*, April 1, 1926, 348-353. Graphs.

OXIDATION OF RUBBER EXPOSED TO LIGHT. Oxidation of rubber takes place in three ways: (1) deterioration throughout, (2) formation of a film on the surface and (3) cracking or checking.—Ira Williams, *Industrial & Engineering Chemistry*, April 1, 1926, 367-369.

CYCLOPENTADIENE RUBBER. A new synthetic polymerization product.—Herman A. Bruson with Hermann Standinger, *Industrial & Engineering Chemistry*, April 1, 1926, 381-383.

IS COMMERCIAL SYNTHETIC RUBBER PROBABLE? Description of the methods of manufacture of isoprene and methyl isoprene and their polymerization. Possibility of competition with natural rubber.—L. E. Weber, *Industrial & Engineering Chemistry*, April 1, 1926, 404-406.

A NEW MECHANICAL TEST FOR RUBBER INSULATION. A process and instrument for determining the load at rupture, under compression, of insulation on wire.—C. L. Hippensteel, *Industrial & Engineering Chemistry*, April 1, 1926, 409-11. Illustrated.

THE CHEMICAL UNSATURATION OF RUBBER UNDER THE ACTION OF HEAT, TRICHLOROACETIC ACID, ULTRA-VIOLET LIGHT AND MASTICATION. The changing of the chemical reactivity of rubber by various physical agents in recent work on hydrogenation is discussed.—H. L. Fisher and A. E. Gray, *Industrial & Engineering Chemistry*, April 1, 1926, 414-416.

HIGH AND LOW STIFFENING CARBON BLACKS.—Ellwood B. Spear and Robert L. Moore, *Industrial & Engineering Chemistry*, April 1, 1926, 418-420.

THE ADDITION OF LIGHT TO ACCELERATED AGING.—Frederick P. Jecusco, *Industrial & Engineering Chemistry*, April 1, 1926, 420-424. Illustrations and Graphs.

EFFECTS OF ACCELERATED AGING UPON SOME PHYSICAL PROPERTIES OF HARD RUBBER COMPOUNDS. A study of the impact strength of hard rubber compounds affords a simple, positive means of measuring changes due to aging. The effect of accelerators and age retarders on the aging curve is not marked.—E. O. Dietrich and Harold Gray, *Industrial & Engineering Chemistry*, April 1, 1926, 428-430. Graphs.

TECHNICAL PROBLEMS CONNECTED WITH RUBBER COVERING OF IRON ROLLS. Serial. Details of covering, curing, grinding and testing of rubber covered rolls. Various defects and their causes.—H. P. Gurney and F. F. Cameron. *India Rubber Journal*, April 3, 1926, 554-562.

MAGNETIC SEPARATORS. Types and construction of machines; their uses in making starch, linoleum, hard rubber, reclaimed rubber, celluloid and cellulose esters.—P. Saurel. *Revue Général Matieres Plastiques*, February, 108-114.

EXPERIENCES WITH ACCELERATED AGE TESTS. A review of the causes of deterioration of vulcanized rubber by oxidation and the methods of testing their aging quality. Illustrated with data and charts.—C. R. Park, *Rubber Age*, London, April 1926, 61-68.

RECLAIMED RUBBER. General—Anonymous *India Rubber Journal*, March 20, 1926, 475-476.

THE EARLY HISTORY OF THE RUBBER INDUSTRY.—B. D. Porritt, *India Rubber Journal*, March 20 and 13, 1926, 444-446, 483-484. Serial.

INSULATING TAPE. Outline of manufacture.—Anonymous, *India Rubber Journal*, March 27, 1926, 519-520.

THE LONGEVITY OF HEVEA BRASILIENSIS. Covers the longevity of rubber trees in the virgin forests of Brazil and under planting conditions in the east.—F. G. Spring, *Malayan Agricultural Journal* XIV, No. 1 and *India Rubber Journal*, March 27, 1926, 521-522.

SCIENCE IN THE CABLE INDUSTRY.—P. Dunsheath, *India Rubber Journal*, March 13, 1926, 441-443.

NATIVE RUBBER IN THE DUTCH EAST INDIES. Review of native practice in rubber cultivation, preparation and characteristics of the product. Data gathered from official reports.—*Bulletin Rubber Growers' Association*, March, 1926, 125-132.

THE UTILIZATION OF CLOTTED LATEX FOR SHEET MAKING.—H. P. Stevens, *Bulletin Rubber Growers' Association*, March, 1926, 135-136.

APPLICATION OF MICRURGY TO COLLOID CHEMISTRY. Description of the apparatus for microdissection and of the applications of this method to colloids, especially rubber.—E. A. Hauser, *Kolloid-Zeitschrift*, 1926, 38, 76-80.

STUDIES ON THE PHYSICAL PROPERTIES OF RUBBER. I. Influence of high temperature on the stress-strain curve of vulcanized rubber.—A. Van Rossem and H. Van Der Meijden, *Journal Society Chemical Industry*, March 26, 1926, 67T-72T. Graphs.

NEW ACCESSORIES FOR THE SCHOPPER RESISTANCE TESTER.—R. Houwink, *Gummi-Zeitung*, March 5, 1926, 1256-1257. Diagrams.

PRESSURE CASTING METHOD FOR MAKING RUBBER MOLDS.—*Gummi-Zeitung*. March 5, 1926, 1257-1258. Diagrams.

A NEW METHOD FOR DETERMINING THE QUALITY OF CRUDE RUBBER. This test is based on the capillary absorption of dilute solutions of rubber in benzol.—Dr. W. Greinert and Dr. J. Behre, *Kautschuk*, February, 1926, 29-31, Graphs, illustration.

FREE SULPHUR.—Dr. Bünz, *Kautschuk*, February, 1926, 33-34.

ELASTIC HYSTERESIS AND ITS IMPORTANCE IN THE STUDY OF THE COLLOIDAL STRUCTURE OF RUBBER. I.—Dr. H. Feuchter, *Revue Generale du Caoutchouc*, February, 1926, 3-5. Graph, table.

SYNTHETIC RUBBERS, I.—L. Sloim, *Revue Generale du Caoutchouc*, February, 1926, 6-9.

INVESTIGATIONS ON NATIVE RUBBER IN CONNECTION WITH THE INQUIRY OF THE NATIVE RUBBER INVESTIGATION COMMITTEE.—Dr. W. Spoon, *Archief voor de Rubbercultuur*, February, 1926, 29-83, numerous tables. English, 84-106.

OUR RIGHT AND OUR DUTY IN RUBBER.—C. T. H. Hierneiss, *De Indische Mermur*, February 17, 1926.

STATIC DEFORMATIONS OF PNEUMATIC, SEMI-PNEUMATIC AND SOLID TIRES.—Raffaele Ariano, *L'Industria*, No. 2, vol. XL, 1926. 16 pages, tables, diagrams, illustrations.

REPORT OF ACTIVITIES DURING 1922, 1923 AND 1924.—Government advisory service for the rubber trade and rubber industry, Delft. Issued by the Department of Commerce and Industry, The Hague, Holland.

Foreign Trade Circulars

Special circulars containing foreign rubber trade information are now being published by the Rubber Division, Bureau of Foreign and Domestic Commerce, Washington, D. C. The publications which give details of the rubber industry in some one country are marked with an asterisk.

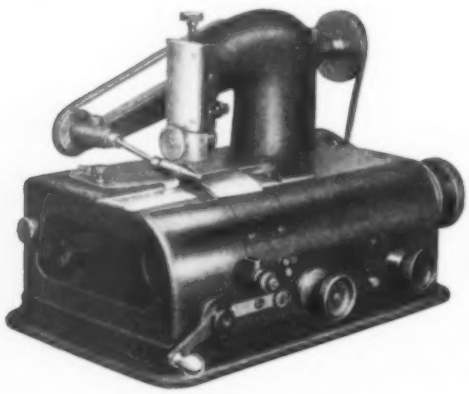
NUMBER	SPECIAL CIRCULAR
1121	"Tire Exporters' Weekly News Letter."
*1124	"February Imports of Rubber Tires Into the United States."
*1126	"Crude Rubber Reexports from United States, Month of February, 1926."
1127	"Tire Exporters' Weekly News Letter."
*1128	"Canadian Tire Exports During February, 1926."
1129	"Mechanical Rubber Goods Exporters' Monthly News Letter."
*1130	"French Tire Exports During the Month of February, 1926."
*1132	"British Exports of Automobile Casings During Month of February, 1926."
*1134	"Italian Tire Exports During 1925."
1135	"Comparative Tire Exports from United States, Canada, United Kingdom, France, Italy, Germany and Belgium During 1925."
1136	"Tire Exporters' Weekly News Letter."
1137	"Rubber Footwear Exporters' Monthly News Letter."
*1138	"Automobile Registration in Bergen and Truck Tire Requirements in Norway."
1139	"Tire Exporters' Weekly News Letter."
*1140	"Preliminary Statistics of Dealers' Stocks of Automobile Tires—April 1, 1926."

New Machines and Appliances

Skiving Machine

IN THE manufacture of some varieties of rubber goods it is desirable to skive the edges of various parts such as fabric and cord tire patches, reliners, tire caps used in both new and old work. Skiving is also done on rubber soles where the shoes are made with rolled edges around the bottom.

The skiver here pictured is adapted to cut a uniform beveled scarf, being provided with a circular knife 6 inches in diameter.



Pluma Skiver Model G

This is larger than usual and avoids a shoulder scarf on the stock. The top-driven presser roll on this model enables the operator to bevel uniformly.—United Shoe Machinery Corporation, Albany Building, Boston, Massachusetts.

Accurate Compound Room Scales

Every manufacturer and merchant knows the value of correct weights in his processes and products when he realizes the losses that follow inaccurate weighing. In the rubber industry many varieties of such scales are in use.

Smith "Exact Weight" Scale

For compound weighing and other purposes requiring close figures, the scale here pictured has special merit because it absolutely prevents overweight losses. The scale is built on the even balance principle weighing against standard dead weights, in capacities ranging from 3 to 65 pounds, the indicator showing when the scale is in exact balance. The indicator travel is one inch to one ounce, which makes under or overweight errors so perceptible that the operator will make the needed correction.

The scales also weigh in any ordinary position even if out of level, a very valuable feature in factory work. They are built for service as well as accuracy and the bearings and indicating parts are not affected by dust. This feature is of special value in a rubber compounding department where an accuracy of a sixteenth of an ounce or closer is sometimes desired. A quarter of an inch travel of the indicator on these scales is a quarter of an ounce, and it can be seen 40 feet away which is a practical point of importance.—The Smith Scale Co., Columbus, Ohio.

Electro-Mechanical Temperature Instruments

Two temperature controlling instruments of the electro-mechanical type are here illustrated. Their principal element as shown in

Fig. 1. I. T. Type Thermostat

Figure 1 is a sensitive tube of bimetallic structure which utilizes expansion due to heat to break an electric contact. This break is used to control electrically operated valves of various designs, including those for oil, gas, steam, water and other fluids.

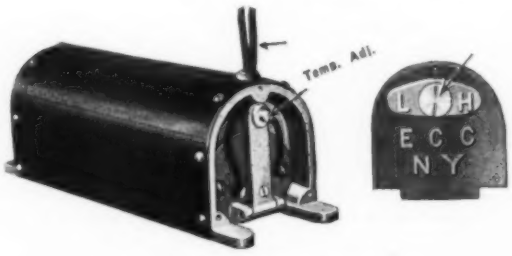


Fig. 2. Radiating Type Thermostat

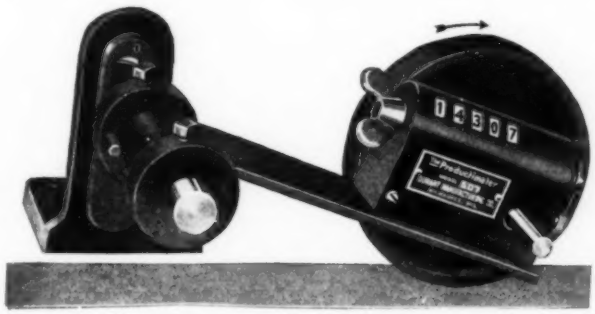
The radiating type of instrument shown in Figure 2 is used on industrial ovens of many sorts, for warm water control in the celluloid industry, and for curing heaters and vulcanizers in the rubber industry, etc. These thermostats are made to suit every kind of installation and are specially designed for the particular conditions under which they are to work. They are self contained, vibration proof and easily adjusted. They are accurate within 1 degree F. or closer if required.—Equitherm Engineering Corporation, 8 to 10 Bridge street, New York, N. Y.

Instrument for Measuring Fabrics

Accurate knowledge of yardage of calendered fabric and other sheet stock in rolls is of great advantage in the various departments of a rubber goods plant.

For measuring lineal production the instrument here illustrated is specially designed. The measuring wheel is cast iron with knurled rim 12 inches in circumference and records one unit for each revolution. Its supporting bracket is also cast iron and allows every desirable adjustment. The leverage between the hinge of the

bracket and the counter exerts the correct amount of pressure on the measuring wheel. The drive mechanism is worm geared and



Model "D7" Lineal Productometer

runs in a pocket of oil. The reading is reset to zero by a single turn of the wing nut.—Durant Manufacturing Co., 655 Buffum street, Milwaukee, Wisconsin.

Constant Temperature Bath

A constant temperature oven is required for use in conjunction with a steel bomb for rapidly aging rubber by the Bierer-Davis method in oxygen under 300 pounds pressure. The bomb is first placed in the bath, and the process of aging takes place for a period of 12 hours, which is equivalent to natural life aging for one year. As an alternative method the rubber aging bath as here illustrated, is used with the bomb immersed in water, which is in constant agitation by a motor driven stirrer. By this means the temperature surrounding the samples in the bomb is maintained perfectly uniform. The constancy of temperature of one quarter degree C. plus or minus is another distinct advantage of this bath that is supplied with an improved thermostat. The aging bath is strongly constructed, having a solid cast iron base, tinned copper tank 16½ inches diameter by the same measure deep. The outside leaded wall is covered with hair felt insulation. The bath is equipped with immersion electric heaters, condulet wiring, improved motor stirrer and a regulator based on rectilinear expansion of metal, thus insuring accuracy and long life.—The Thermo-Electric Instrument Co., 1206 South Grove street, Irvington, New Jersey.

Freas Rubber Aging Bath

Accumulator Operating and Control Valves

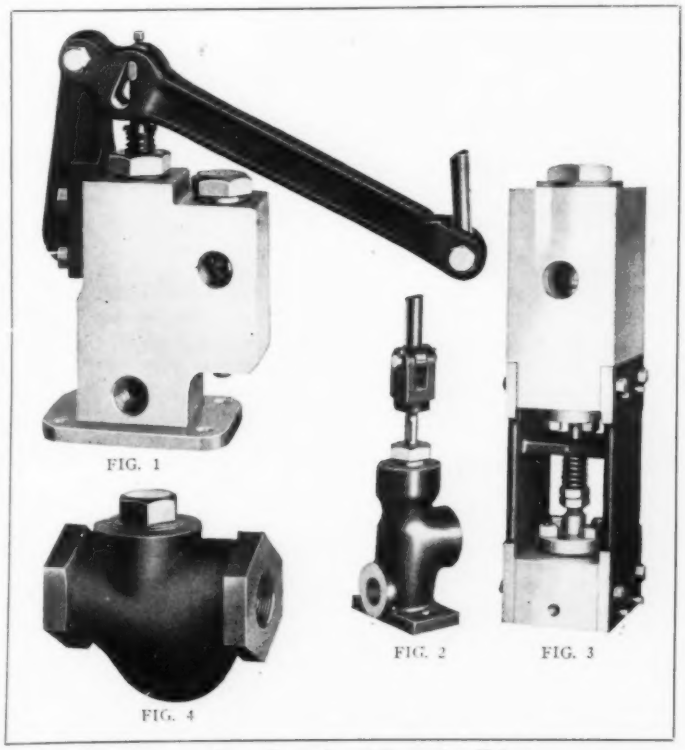
The damage possible from the operation of an accumulator not automatically safeguarded against accidental loss of control warrants careful attention in its installation and equipment. The illustrations here shown are a group of valves that insure safety in any accumulator system.

Figure 1 is an automatic control valve used to by-pass the pump when the accumulator has been pumped full. The control is effected by means of the vertical rod attached to the valve arm. This rod is raised when the accumulator is up thus opening the by-pass and allowing the pump to run free. A check valve, built into the control valve body, holds the pressure on the accumulator. Dropping the accumulator a set distance closes the by-pass valve and the pump, raising the check valve, discharges into the accumulator.

Figure 2 is an automatic safety valve functioning only in case of failure of valve 1 to operate, due to its breakage or that of the control mechanism. If the accumulator overstrokes, the rod connected to the valve stem is raised, allowing the pump to discharge through the valve and arresting the upward motion of the accumulator.

Figure 3 is a protective valve connected as closely as possible to the accumulator and between it and by-pass valve 1. It functions to prevent sudden dropping of the accumulator, should a break occur in the pipe line. A small pilot line is connected from the auxiliary cylinder at the bottom of this valve to some distant point in the plant piping. If pressure fails in the pilot line the protective valve will seat and shut off the accumulator entirely until the pump can again build up pressure in the supply line.

Figure 4 is a choker check valve used on small installations in place of the protective valve 3. It is a regular check valve with a small hole drilled through the check. When the pump is lifting the accumulator the check is opened full. When the accumulator is lowered the discharge passes through the small hole provided in the check and this slow escape prevents the accumulator from dropping too fast.—The French Oil Mill Machinery Co., Piqua, Ohio.

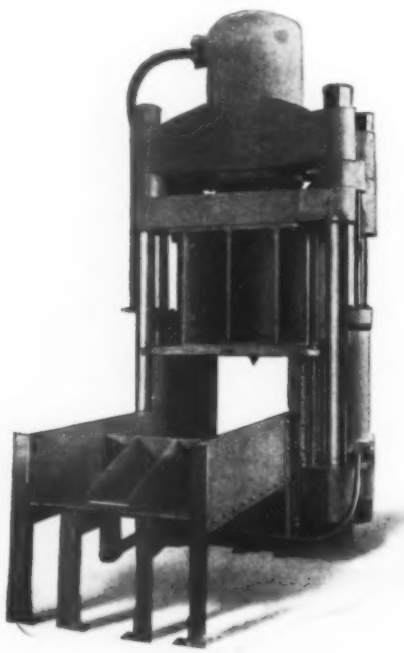


Accumulator Control and Protective Valves

Baled Rubber Cutting Press

The universal use of plantation rubber in heavy compressed bales developed the need of special facilities to reduce the firmly consolidated sheets quickly and cheaply to pieces suitable in size for milling.

The illustration here shown represents a most effective new type of hydraulic press designed to cut blocks of crude rubber at a single stroke into triangular sections of uniform size and section.



Farrel Rubber Cutting Press

From the charging box in the foreground the bale to be cut is slid to place in the press by means of an air operated pusher. This action forces out the pieces of the previously cut bale leaving the uncut one in position for cutting by the next stroke. The action is very rapid, the entire cycle occupying less than two minutes, depending upon conditions.

If desired two bales can be cut at the same time into but half the pieces when the bales are cut singly. The press can be built with any required number of knives and to accommodate either one or two bales at the same time.—The Farrel Foundry & Machine Co., Ansonia, Connecticut.

Steel Mold Rings

The bead rings used in tire molds are commonly of cast iron. Recently, however, rolled steel mold rings have been developed. These are made by a patented process from bar steel which is prepared and rolled to within ⅛ or 3/16 of an inch of the finished blue-print sizes, including the contours. These rings are not furnished rough turned because they are rolled so close to size. By the use of these rings there is a considerable saving in weight of material. Also by the patented treatment of the steel the machining of the ring shows a saving as all hard spots or blow holes are eliminated. As compared to the service of cast rings these turned steel ones are everlasting because there is no loss from breakage. These practical advantages fully off-set the increased original cost.—Milwaukee Forge & Machine Co., 340 Oklahoma avenue, Milwaukee, Wisconsin.

Machinery Patents

The United States

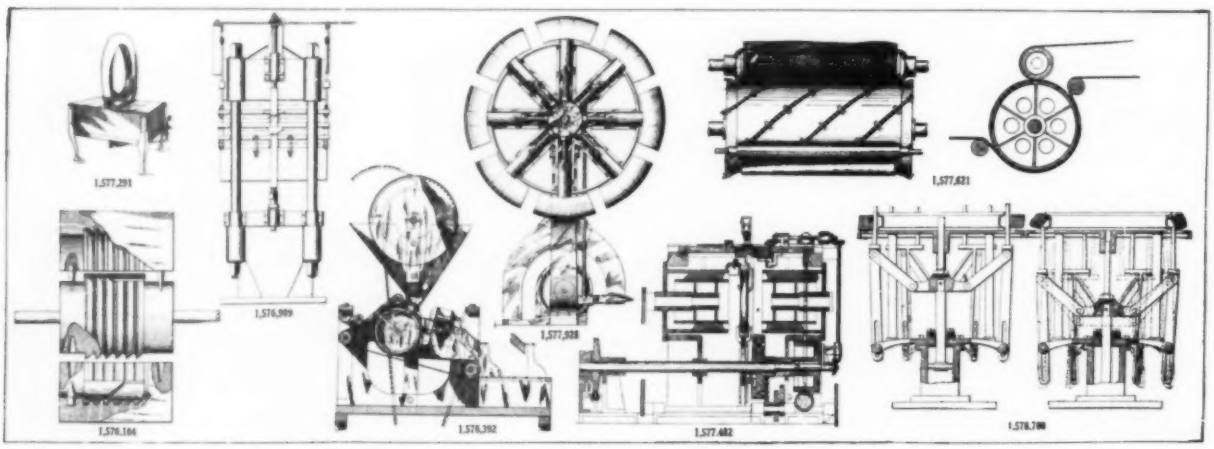
1,576,184. MOLD FOR MAKING RUBBER GOODS. Hollow molded shock absorbing rings for telephone instruments are formed by shaping them as a group connected and cured in the general form of a cylinder on a central flanged mandrel. This mandrel serves as a core in a two part mold, its flanges corresponding with grooves in these mold parts. The sleeve of rings is formed of sheet rubber laid in the lower half of the mold and extending over the upper side of the core before the top piece of the mold is set in place over it. After curing, the rings are removed from the core by revolving the latter between centers of a lathe and cutting them apart with a sharp pointed knife.—Harold A. Freeman, Los Angeles, California.

1,576,989. PLATEN PRESS. In a multiple platen press the several intermediate platens are spaced and adjusted by outside guide rods so that the platens may be positioned selectively and the molds slid out from the press onto an operating table as desired.—Albert Pasquali and Frank W. Poland, assignors to Hood Rubber Co., all of Watertown, Massachusetts.

1,577,291. HEAT CURING CABINET. This is a dry heat curing cabinet or vulcanizer for vulcanizing the rubber used in retreading automobile tires. The vulcanizing heat is supplied by a gas burner automatically regulated to a definite temperature by a thermostat. The top of the curing cabinet comprises a series of removable plates which are replaceable by segmental molds. The cover plates are of the same size as the supporting portion of the mold so that as many molds may be located on top of the cabinet as desired, and the spaces unoccupied by molds can be covered by plates to effectually close the top when the device is in operation.—Emil Nestler, assignor to Nestler Rubber Fusing Co., both of New York, N. Y.

1,577,482. CORE HANDLING APPARATUS. A mechanism for positioning and manipulating tire forming cores by raising and lowering them from a hook on an overhead track, and for supporting the core during the tire building operation.—Thomas Midgley, Hampden, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,577,619, also 1,577,620, and 1,577,621. ROTARY BIAS CUTTER. These patents relate to an improved rotary cutter for rapid and accurate work wherein a metal strip or knife with several cutting edges may be used to bias cut rubberized fabrics. The knife is held accurately in place in a resilient mounting, with device to prevent the rolling action against the knives from buckling them.—John R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.



1,577,928 TIRE BAND EXPANDER. This is practically an expanding core for distending a cord tire carcass under even tension. This action stretches the bands of the cord fabric in a uniform manner, which then permits the stretching down of the cord fabric over the metal or pneumatic core and formed in the regular way. It also facilitates the stretching of the fabric cords to a correct angle, tangent with the wheel or center of the tire.—Harley F. Murray, assignor of one-half to Lee Tire & Rubber Co., both of Conshohocken, Pennsylvania.

1,578,392. APPARATUS FOR ARRANGING LOOPED ARTICLES. This arranges rubber elastic bands in orderly form for packaging. It comprises a feed drum, a hopper feeding the bands from the drum to a carrier roll. Successive bands are picked off of the carrier roll, at each column of bands, by a conveyer screw from which they drop off onto pins ready for packing.—Charles C. Cadden, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,578,760 TIRE BAND EXPANDER. This rack is worked by hydraulic power on a central piston. The vertical movement of the piston rod opens and closes the rack, stretching the solid rubber band tire which encircles a series of pins moving radially with the movement of the rack. The band is thus enlarged until it will pass over tire rim placed on top of the apparatus, when it retracts to close adjustment on the rim.—Mark A. Replogle, Akron, assignor to Lambert Tire & Rubber Co., Barberton, both in Ohio.

1,575,616 Rubber trimming device. James W. Brundage, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,575,700 Process and apparatus for making rubber strips. Harvey F. Maranville and Charles W. Steele, assignors by mesne assignments, to The Firestone Tire & Rubber Co., all of Akron, Ohio.

1,575,925 Apparatus for applying flipper strips to tire bead cores. Harvey F. Maranville, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,576,061 Apparatus for curing pneumatic tubes. Max H. Pade, assignor to The Firestone Tire & Rubber Co., both of Akron, Ohio.

1,576,107 Device for locating inner tubes in molds. Michael A. Flynn, Akron, Ohio.

1,576,532 Core for tire vulcanization. Thomas Midgley, Hampden, Massachusetts, and Ralph B. Naylor, Pasadena, California, assignors to The Fisk Rubber Co., Chicopee Falls, Massachusetts.

1,577,068 Electrical controller for motor driven devices. Frederick H. Obersehmidt, Cleveland, Ohio, assignor to The Cutler-Hammer Manufacturing Co., Milwaukee, Wisconsin.

1,577,508 Trimming machine for rubber goods. Harry E. Wills, North Brookfield, Massachusetts.

1,577,521 Cord making machine. Frederick S. Dickinson and Albert E. Shepard, assignors to Dickinson Cord Tire Corporation, all of New York, N. Y.

1,577,664 Apparatus for making tire casings. James D. Tew, Hudson, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,577,881 Mold for curing tire casings. Oscar E. Swanson, assignor of one half to Floyd G. Bean, both of Minneapolis, Minnesota.

1,577,886 Method and apparatus for manufacture of cushion tires. Harry Willshaw, assignor to Dunlop Tire & Rubber Corporation of America, both of Buffalo, New York.

1,578,393 Method and apparatus for arranging looped articles. Charles C. Cadden, Akron, Lloyd L. Lantzer and Benjamin A. Evans, Cuyahoga Falls, both in Ohio, assignors to The B. F. Goodrich Co., New York, N. Y.

1,579,293 Method and apparatus for making endless belts. Abram E. Falor, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,579,300 Method and apparatus for making tubes. John R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,579,342 Apparatus for drying web material. Bernard R. Andrews, Braintree, Massachusetts.

1,579,391 Method and device for repairing tires. Hugo F. Platt, San Francisco, California.

1,579,490 Tube vulcanizing device. Jerry R. Ryan, St. Paul, assignor by mesne assignments to Ke Haw Ke Manufacturing Co., Minneapolis, both in Minnesota.

1,579,518 Pneumatic tire mold. George F. Connelly, San Francisco, California.

1,579,641 Method and apparatus for retreading tires. Richard S. Burdette, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

1,579,657 Roller guide for flap cutting and building machines. Joseph E. Perrault, assignor to Hood Rubber Co., both of Watertown, Massachusetts.

1,579,716 Vulcanizer. Otto J. Kuhlke, assignor to The Kuhlke Machine Co., both of Akron, Ohio.

1,579,717 Vulcanizer. Otto J. Kuhlke, assignor to The Kuhlke Machine Co., both of Akron, Ohio.

1,579,718 Apparatus for curing tire flaps or the like. Otto J. Kuhlke, assignor to The Kuhlke Machine Co., both of Akron, Ohio.

1,579,902 Inner tube core apparatus. Harry Willshaw, assignor to Dunlop Tire & Rubber Corporation of America, both of Buffalo, New York.

1,579,918 Apparatus for gauging associated elements. Ernest O. Dieterich, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,579,922 Apparatus for manufacturing tires. John R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

The Dominion of Canada

258,868 Spiral forming machine. John R. Gammeter, Akron, Ohio, assignee of Robert C. Pierce, Belleville, New Jersey, both in U. S. A.

259,338 Rubber cutting machine. Charles B. Martin, Canton, Ohio, U. S. A.

The United Kingdom

245,902 Portable vulcanizers. H. Normington, Sandholme Garage, Bradford Road, Burley-in-Wharfedale, Yorkshire.

246,136* Trimmer for heels. United Shoe Machinery Corporation, 205, Lincoln street, Boston, assignee of G. L. Bean, Quincy, both in Massachusetts, U. S. A.

246,440* Belt gearing. Allis-Chalmers Manufacturing Co., 62nd avenue, assignee of W. Geist, 435 23rd avenue, both in Milwaukee, Wisconsin, U. S. A.

246,448* Tire retreader. G. Turbillon, 3 Rue Docteur Mazet, Grenoble, France.

* Not yet accepted.

Germany

426,894 (April 1, 1925). Polishing drum for roughening the smooth surfaces of rubber goods. Mittelland Gummiwerke A.-G., Hannover-Linden.

427,254 (August 21, 1923). Device for removing rubber nipples or similar hollow articles from dipping molds. Hermann Menchen, Planegg; Emilie Menchen, München; Oskar Menchen, Buenos Aires; Richard Menchen, Porto Allegro; Dagobert Menchen, Muhlenbeck b. Berlin and Pauline Petersen, née Menchen, Alborg, Denmark. Represented by Hermann Menchen, Bahnhofstrasse 147, Planegg, b. München.

Process Patents

The United States

1,575,617 Composite horn and method of making same. George W. Bulley, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,576,024 Cellular cushion tires. Robert Barrantes, Kenmore, Robert J. Bonstein and Mark A. Replogle, both of Akron, assignors to Lambert Tire & Rubber Co., Barberton, all in Ohio.

1,576,156 Method of permanently marking tire casings. Alois P. Swoboda, New York, N. Y.

1,576,767 Protecting pipes by use of latex. Chauncey C. Loomis, Yonkers, and Horace E. Stump, Brooklyn, assignors by mesne assignments to The Hevea Corporation, all in New York.

1,577,349 Securing rubber to leather and other like materials. Albert Linn Murray, Auburn, Indiana.

1,577,499 Wall covering. James H. Stedman, Braintree, Massachusetts.

1,578,202 Bead construction. Thomas Midgley, Hampden, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,578,643 Elastic webbing. George E. Clauss, assignor to The Ansonia O. & C. Co., both in Ansonia, Connecticut.

1,578,736 Blanket for printing presses. Robert John, New York, N. Y.

1,578,787 Forming battery jars. John Westren, assignor to Dunlop Tire & Rubber Goods Co., both in Toronto, Ontario, Canada.

1,579,650 Manufacture of canvas upper shoes. David A. Cutler, Quincy, assignor to Alfred Hale Rubber Co., Atlantic, both in Massachusetts.

The Dominion of Canada

258,786 Manufacturing tubing. The Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec, assignee of Willis Alexander Gibbons, Little Neck, Long Island, and Hedwig Augusta Keonig, New York, both in New York, U. S. A.

259,203 Cushion tires. The Lambert Tire & Rubber Co., Barberton, assignee of Robert Barrantes, Kenmore, Robert J. Bonstein and Mark A. Replogle, both of Akron, all in Ohio, U. S. A.

259,406 Endless belt. The Goodyear Tire & Rubber Co., assignee of Norris E. Kimball, both of Akron, Ohio, U. S. A.

The United Kingdom

245,621 Elastic fabric. F. B. Dehn, 103, Kingsway, London (J. R. Kendrick Co., Inc., Germantown avenue, Philadelphia, Pennsylvania, U. S. A.).

245,622 Boot and shoe appliances. A. J. Strong, Crown Chambers, Crown Alley, Dublin.

246,067 Air tubes for tires. Dunlop Rubber Co., Ltd., 1, Albany street, Regent's Park, London.

246,222 Buoyant fishing lines. E. Qurin, Kirchberg-on-Wechsel, Lower Austria.

246,363 Boot protectors. W. J. Kent, 243, Garfield place, Brooklyn, New York, U. S. A.

Germany

426,892 (September 2, 1924). Method and vulcanizing mold for rubber shoes. Vereinigde Nederlandsche Rubberfabricken, Doorwerth, Netherlands; represented by R. Schmehlick and C. Satlow, Berlin S. W. 61.

426,895 (February 16, 1924). Method of making fiber masses containing rubber. Vultex Limited, St. Helier, Channel Islands. Represented by Dr. Carl Böhm von Bornegg, Backenheimer Anlage 45, Frankfurt-a-M.

427,431 (November 15, 1924). Method of making solid and hollow balls of sponge rubber. Mittelland Gummiwerke A.-G., Hannover, Linden.

427,732 (June 6, 1925). Method of applying printing designs on to soft, elastic printing sheets of rubber, linoleum or the like. Josef Horn, Friedrich-Wilhelmstrasse 76, Dresden.

New Goods and Specialties

Peachey Wet Weather Wear

OWING to the unique Peachey process which renders the most delicate materials absolutely storm proof without impairing their suppleness and sheen, women may go forth in the heaviest downpour smartly dressed in the Peachey wet weather wear. These garments are cut on the very latest lines and are available in an unlimited range of lovely shades; crepe de chine, marocain, artificial silk and other delicate fabrics are the materials used. Extremes of temperature do not affect them and they may be stored over long periods and still retain their original properties. The Peachey garments are guaranteed for three years.

Peachey Hat

The hat illustrated is only one of the many styles of millinery designed by an expert, which, besides protecting the wearer against the wet, still retains its shape and good style and is suitable for any occasion. From the delicate coloring and materials of these hats, one would never suspect them of being proof against a drenching rain.—Peachey Textiles Ltd., 83, Pall Mall, London, S. W. 1, England. The Grasselli Chemical Co., 347 Madison avenue, New York, N. Y., are United States agents for the Peachey process.

Chair Tips of Rubber

The Silentslip chair tips here illustrated eliminate the customary racket and noise made by chairs being moved across the floor, the metal contact with the floor being insulated from the chair leg by the rubber. The rubbers are inserted with a metal washer and nailed to the chair legs when nails can also be set with a nail punch against the metal. The metal washer prevents the rubber from tearing away from the chair leg. The metal dome is next hammered into the rubber, the weight of the chair holding it in place.—Texas Rubber Specialty Co., 803 Franklin avenue, Houston, Texas.

Silentslip Tips

Coat Hangers

A frequent cause of annoyance is remedied by a very simple use of rubber. Coats and dresses so often slide off coat hangers on to the floor, but a new hanger is made which has about an inch of rubber inserted on each end, the rubber having a saw-like edge which tends to hold the garments securely in place.

Rubberized Rayon Slickers

The vogue for bright, highly colored rainy day costumes will receive fresh impetus with the showing of the new rubberized woven rayon raincoats. The luster, low cost, durability and many possibilities for decorative color schemes are bound to make an appeal, more especially to women. The bright rubber colors are particularly adapted to the sheen of the rayon, and, in addition, this fabric is very soft, flexible and light in weight, which should prove an additional factor in its popularity especially during the coming warm months.

The slicker illustrated is made on straight lines, with no belt, loose enough not to wrinkle light summer clothes, yet fitted enough to form a dainty, fashionable appearance. There is a standing velvet collar, made of a contrasting shade, and large patch pockets on each side. These raincoats may be obtained in six different colors: for women's wear the colors are red, green, blue and black, and for the men, olive and blue.—The Badger Raincoat Co., Port Washington, Wisconsin.

Rubberized Rayon Raincoats Are Destined to Become Popular Due to Beauty and Low Cost

Massaging Apparatus

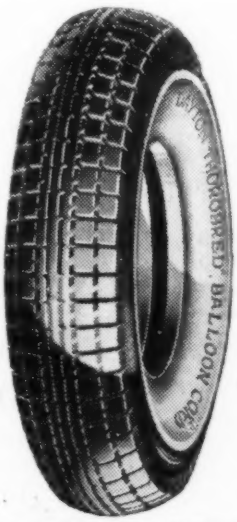
Punkt Roller is a self-massaging apparatus which acts locally only where it is desired to remove fat; it is harmless, easy to manage and takes very little time, about five minutes each treatment being all that is necessary to accomplish the desired reduction. In addition, the manufacturer claims that it gives quick results.

Punkt Roller

The roller is composed of several small rubber rolls which revolve about a central core; the rolls are made with numerous depressions which exert a sucking action on that part of the body which is massaged, this suction serving to loosen the tissues and promote circulation of the blood.—L. M. Baginski, Hiddenseestrasse 10, Berlin-Pankow, Germany.

Balloon Cord Tire

New principles of design and construction place the tread of the Dayton stabilized balloon in complete contact with the road at deflections as low as five per cent, a load of 300 to 400 pounds putting the tread completely on the ground, thus lessening the tendency to shimmy and gallop. Enough tread is on the ground and in actual use so that the load will be distributed over sufficient area to prevent rapid tread wear. Another important feature are the modulated cushions used in larger sizes, tests proving that after passing a certain size, there is a greater strain between the tread and the carcass. The design of the non-skid requires less power to drive, it is a quick-grip, quick-release that holds the road more securely yet allows easier steering.



Dayton Stabilized Balloon

The advantages for this tire, claimed by the makers, are, in addition to the comfort of a balloon design, smoothness of motion, strength, long mileage and ease of steering of stabilized construction manufactured by The Dayton Rubber Manufacturing Co., Dayton, Ohio.

Maine Trouting Boot

This wading boot is adapted for stream fishing, duck hunting, swamp hunting, washing cars and general dull weather outing, and is the only boot made in narrow widths. With every pair is included a small repair outfit that will mend a snag or cut in three minutes, and every pair is guaranteed to outwear two pairs of ordinary rubbers. The boots are made of a special, tough compound, are very light and may be rolled and carried in the pocket. The illustration shows strap around the ankle which keeps the boot from slipping at heel or pulling off in marsh mud, another strap holding leg in place when worn below the knee, the same strap also securing the boot when worn at full length, which is almost to the waist.—L. L. Bean, Freeport, Maine.

Rubber Boot

Rubber Cigar

Faultless Havana Pará Sport cigars look like the real thing but are made of sponge rubber, the outside of each finished to simulate the wrapper of a fine Havana cigar, and banded with regular cigar bands. To complete the illusion ten of them are packed in a box. There are four styles to these cigars; one is the straight cigar, another has a pencil concealed in it, the cigar preventing the point from breaking while in the pocket. A third variety contains a reservoir for water and may be used as a squirt gun; the fourth style containing a noisemaker, which, when blown through, produces a noisy squawk.—The Faultless Rubber Co., Ashland, Ohio.

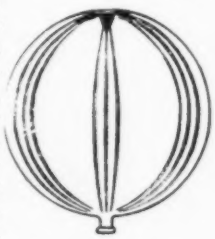
Havana Sport Cigar

Two Clever Balloon Novelties

Perhaps one reason why toy balloons hold such an irresistible appeal for both kiddies and grown-ups, lies in the fact that they are constantly made in an almost endless number of unique and novel variations.

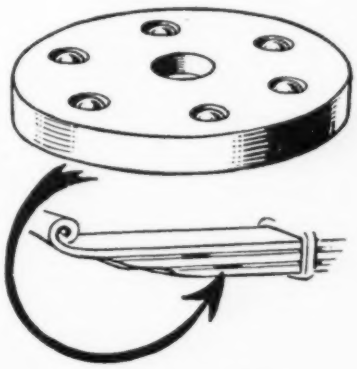
The two new types illustrated are offered by The Oak Rubber Co., Ravenna, Ohio, the Chinaman balloon presenting a jolly Oriental face which is printed upon a two color balloon, with a queue affixed to the balloon in a most realistic manner. The new striped balloon is made up in a pleasing variety of colors with six alternating stripes of contrasting color, radiating from a center star design. Both these balloons have won instant popularity, appealing strongly to the youngsters.

Chinaman Balloon


Striped Balloon

Ball Bearing Shock Absorber

The ball shock absorbers provide each leaf with a mechanical slipping agent that makes each individual leaf ball bearing; this guarantees a freer, easier action of each leaf, actually absorbing the shocks. As there is nothing to wear out these absorbers will last indefinitely, the rubber simply acting as a retainer for the ball bearings, holding them in place and permitting the leaves of springs to slip back and forth without friction. The illustration shows the design of ball bearing shock absorbers, which are about the size of half dollars and fitted with six perfectly shaped ball bearings securely held in pockets. No special tools or equipment are needed for installing, taking only about ten minutes and requiring no special skill on the part of the owner. By simply inserting the small chisel or heavy screwdriver between the leaves of the spring, the ball bearing disk is inserted about one inch from end of the leaf, and by removing the wedge the leaves snap back in place for all time.


Ball Shock Absorbers

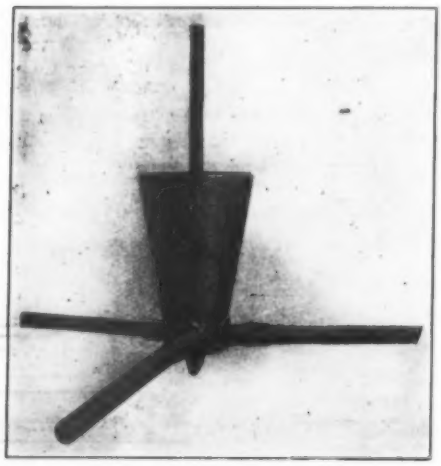
A Ford requires ten of these absorbers, a Chevrolet sixteen, while the larger cars take about twenty-four.—Theodore R. Plank, 665 East Vernon avenue, Los Angeles, California.

Rubberized Umbrellas

In keeping with the trend of fashion, which decrees all-rubber as a guard against heavy rains, umbrellas are now made of rubberized fabrics, the great variety of bright colors possible in these materials being an important factor in their popularity.

Ebonite Sparge Box

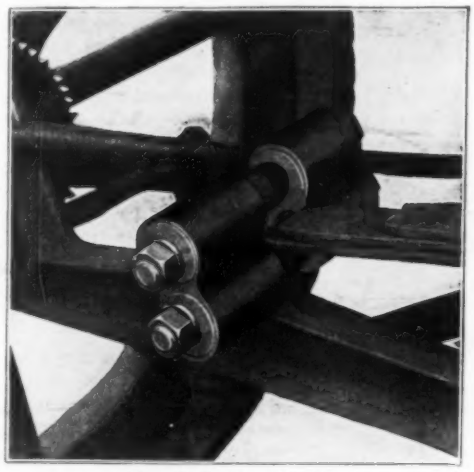
Ebonite, or hard rubber, is coming more and more into use among manufacturers of food products because of its acid proof quality. The vinegar sparge box illustrated is used to divide uniformly the vinegar stock (alcoholic mash used for the production of vinegar) over the top head of a vinegar generator, the stock or mash being accurately timed so that a given quantity of liquid is sent through the generators. This new dumper distributes over the whole diameter of the generator, an improvement on the old type which distributed to one side at a time. The immunity of hard rubber to the action of food acids safeguards the purity of the product, and the equipment, when properly installed, is practical insurance against frequent renewals.—David Moseley & Sons, Ltd., Chapel Field Works, Ardwick, Manchester, England.



Sparge Box For Vinegar Plants

Rubber Shackles

The riding qualities of a Ford car are greatly improved by the addition of rubber shackles which are made so that all of the weight rests on bolts that go through 16 rubber bushings. These shackles are guaranteed to eliminate all shackle rattle, the rocking of the springs being taken up by the twisting of the rubber, and so requiring no oil. They are attached by simply removing the metal shackle bolts and slipping the rubber shackles in their place, placing them on both ends of the spring and screwing the nuts tight, an operation which only requires twenty minutes and no special tools.—Powell Rubber Bushing Co., Utica, New York.



Powell Rubber Shackles

Stocking Protectors of Rubber

As a safeguard against mud and rain, the new stocking protectors are finding ready favor among women of all ages; the brighter, gayer colors appealing particularly to the flapper, the conservative shades to her more mature sister. Rainy day ensembles with hat,slicker, umbrella, rubbers and mud-guards all matching prove as popular and stylish as more perishable wear.

A particularly pretty type of mud-guard is shown at Lord & Taylor's, 39th street and Fifth avenue, New York, N. Y., which may be obtained in five different shades; grey, orange, navy, red and black. They are pulled on over the shoe, having two straps which fasten over the instep and heel. These protectors, as shown in Figure 1, reach just below the knee and are finished at the top with a fancy, shirred garter.

Another style comes from England, a product of F. W. Slade, 50 St. Paul's Road, Burdett Road, Bow, London, E., which is illustrated in Figure 2. These hose protectors are open in front with three elastic straps fastening over the leg, a fourth slipping under the heel. They are made in three sizes, small, medium and large, and in two colors, tan and black.

From Germany come other variations as shown in Figures 3 and 4, these being known by the trade name of "Atlantic" and manufactured by Gummiwarenfabrik, M. Steinberg, Cologne, Lindenthal. Atlantic mud-guards are packed in light envelopes which may be carried in the pocketbook and are to be worn over low shoes, keeping the ankles warm and dry. To put on, the reinforced tricot strap is slipped on over the heel, resting between the heel and sole, the protector then being drawn and the snappers closed as shown in the illustrations. They are easily cleaned with a soft rag and clear lukewarm water, and will not tear if snappers are always opened when putting on or removing.

FIGURE 1 FIGURE 2 FIGURE 3 FIGURE 4

Various Types of Mud Guards for Women

News of the American Rubber Trade

Rubber Industry Outlook

GOVERNMENT reports on general business conditions indicate that in March steel production, cotton consumption, building activity, automobile factory shipments and the volume of trade in general not only exceeded that of the preceding month but of March a year ago.

Crude rubber domestic stocks have increased, and the prices have consistently declined due to abatement of urgent consuming demand.

The production of automobile vehicles in the first quarter registered a gain of 14 per cent above that in the first quarter a year ago. Sales for the quarter showed 20 per cent gain for passenger cars and 12 per cent gain for trucks and buses.

Tire output has gained steadily in the past month and is now at 75-80 per cent of normal. Capacity output is expected to be scheduled early in May when the motoring season opens. Consumer expectation of a cut in tire prices is not well founded economically since present stocks of tires and tubes were manufactured from rubber considerably above the current prices for crude. This applies as well to every division of the rubber industry which is adversely effected by every cut in tire prices.

Rubber footwear production is in full swing on summer weights and sports goods wear. Mechanical factories generally are running at about the same rate as tire factories supplying the routine needs of general mechanical industries and railways. The production of rubber heel equipment for new shoes proceeds at about 75 per cent owing to the lateness of the season. The manufacture of insulated wire is very active, most concerns running close to capacity output.

Dividends Declared

Company	Stock	Rate	Payable	Stock of Record
Falls Rubber Co.	Pfd.	2% q.	May 1	Apr. 26
Firestone Tire & Rubber Co.	Com.	$1.50	Apr. 20	Apr. 10
Firestone Tire & Rubber Co.	6% Pfd.	1½% q.	Apr. 15	Apr. 1
Firestone Tire & Rubber Co.	7% Pfd.	1¾% q.	May 15	May 1
Fisk Rubber Co.	1st Pfd. (Acct. Acc.)	1¾%	May 1	Apr. 17
Fisk Rubber Co.	1st Pfd. Com.	1¾% q.	May 1	Apr. 17
Goodrich, B. F., Co.	Com.	$1.00	June 1	May 15
Hood Rubber Co.	7½% Pfd.	$1.88	May 1	Apr. 20
Hood Rubber Co.	Pfd.	$1.75 q.	May 1	Apr. 20
Seiberling Rubber Co.	Pfd.	$2.00 q.	Apr. 1	Mar. 20
United States Rubber Co.	1st Pfd.	2% q.	May 15	Apr. 20

Akron Rubber Stock Quotations

Quotations of April 20, supplied by Otis & Co., Cleveland, Ohio.

COMPANY	Last Sale	Bid	Asked
Aetna com.	19	15½	20
Aetna pfd.	96	90	92
Falls com.	10	..	10
Falls pfd.	18⅞	..	18⅞
Faultless com.	34½	34½	39⅞
Firestone com.	113	105½	112½
Firestone 1st pfd.	101	100½	..
Firestone 2nd pfd.	98½	98	99
General com.	160	..	170
General pfd.	110	..	110½
Goodrich com.	53	..	..
Goodrich pfd.	99¼	..	..
Goodyear com. V. T. C.	33½	30	33
Goodyear pfd. V. T. C.	102¼	..	100½
Goodyear pr. pfd. V. T. C.	106	..	..
India com.	160	..	160
Miller com.	44	..	..
Miller pfd.	101½	100	102
Mohawk com.	35	30	37
Mohawk pfd.	80	70	75
Seiberling com.	21	20¾	21
Seiberling pfd.	95	..	95
Star com.	12	..	12
Star pfd.	35	..	..
Swinehart com.	9	9	..

New York Stock Exchange Quotations

APRIL 22, 1926

	High	Low	Last
Ajax Rubber, com.	10	9¾	9⅞
Fisk Rubber, com.	17½	16¾	17¼
Fisk Rubber, 1st pfd, sta. (7)	77½	77⅜	77⅜
Fisk Rubber, 1st pfd, cv. (7)	95	95	95
Goodrich, B. F., Co., com. (4)	55	53¾	54¾
Goodyear Tire & Rubber pfd. (7)	101	101	101
Intercontinental Rubber, com. (1)	16	15⅝	16
Kelly-Springfield Tire, com.	15⅛	15	15⅛
Keystone Tire & Rubber, com.	⅞	¾	⅞
Lee Rubber & Tire, com.	10⅛	10⅛	10⅛
Miller Rubber, com. (2)	36	36	36
Norwalk Tire & Rubber, com. (1.60)	10¾	10⅜	10¾
United States Rubber, com.	64	62⅛	63⅜
United States Rubber, 1st pfd. (8)	105	104¾	105

New Incorporations

B. O. BODKIN TIRE CO., April 8, 1926 (New Jersey), capital $125,000, divided into 1,250 shares of the par value of $100 each. Incorporators: Bernal O. Bodkin and Ethel M. Bodkin, both of 341 DeWitt avenue, Belleville, New Jersey; Frederic W. Smith, 38 Kendal avenue, Maplewood, New Jersey. Principal office, 494 Central avenue, Newark, New Jersey. To deal in automobile tires, parts and accessories.

CHANGEABLE DISPLAY LETTER CORPORATION, April 6, 1926 (New York), capital $10,000. Incorporators: Emil Sheemann, Hotel Breslin; Sidney Simon, 200 Fifth avenue; B. M. Kaplan, 175 Fifth avenue; all of New York City. Principal office, Manhattan, New York. To manufacture rubber stamps, signs, etc.

CIRCLE TIRE CO., INC., April 1, 1926 (New Jersey), capital 300 shares without par value. Incorporators: J. E. Braud, L. Tarantino and Alfred F. McCabe. Principal office, 15 Exchange place, Jersey City, New Jersey. To manufacture rubber goods.

THE CLEVELAND RAINCOAT CO., February 15, 1926 (Ohio), capital $10,000. Incorporators and officers: Theodore Messerman, president; Hyman Messerman, secretary and treasurer; and Tilly Messerman, all of 3557 East 151st street, Cleveland, Ohio; Robert Messerman and Ezra Shaperio. Principal office, 1372 West 6th street, Cleveland, Ohio. To manufacture all kinds of rubberized merchandise, such as raincoats, slickers, rubberized aprons, etc.

CONCOURSE SERVICE STATION, INC., March 24, 1926 (New York), capital 100 shares, no par value. Incorporators: Harry Zimmerman, 946 Hoe avenue; Fred S. Weitzner, 938 Longwood avenue, both of Bronx, New York, and Abraham J. Multer, 572 Ocean Parkway, Brooklyn, New York. Principal office, Manhattan, New York. Rubber goods, tires, etc.

CUT RATE TIRE CORPORATION, January 27, 1926 (Missouri), capital $64,000, 50 per cent paid up. Incorporators: Morris Schechtman, president; Jalmer Lyytinen, vice-president; and J. J. Becker, secretary and treasurer. Principal office 1524 Grand avenue, Kansas City, Missouri. Manufacturers, distributors and jobbers of automobile tires, tubes and accessories.

DETACHABLE HEEL COMPANY OF OHIO, March 12, 1926 (Ohio), capital $25,000. Incorporators and officers: Charles F. Smith, president; C. B. Baker, secretary; Percy Parker, A. R. Cole and F. J. Collingwood, directors; all of Findlay, Ohio. Principal office, 324 Buckeye-Commercial Bank Building, Findlay, Ohio. To distribute rubber heels.

DOUGLAS PATENTS CORPORATION, March 25, 1926 (New Jersey), capital $25,000 preferred stock and 2,500 shares of common stock without nominal or par value. Incorporators: Reb Douglas, 243 Lake street; Salvatore Tino, 360 North Eleventh street; and Frank G. Masini, 20 Branford place, all of Newark, New Jersey; and Vincent Tino, 524 Kearny avenue, Kearny, New Jersey. Principal office, 20 Branford place, Newark, New Jersey. To deal in tires for automobiles, bicycles, etc.

ESSEX TIRE & SUPPLY CO., March 13 1926 (Massachusetts), capital $50,000. Incorporators and officers: Nathan H. Labovitz, president and treasurer; Abraham Levy, director, both of 10 Lagrange Terrace, and Benjamin Selsberg, clerk, 25 Crosby street, all of Lynn, Massachusetts. Principal office, Lynn, Massachusetts. To manufacture and deal in motor vehicle tires, inner tubes, motor vehicle parts, etc.

THE GAUNT MANUFACTURING CO., March 6, 1926 (Ohio), capital $20,000. Incorporators: Martin Gaunt, W. E. Kern, C. C. Umbenhouser, A. E. Bauer and M. A. Gaible, all of Dayton, Ohio. Principal office, 303 Dayton Savings & Trust Building, Dayton, Ohio. To manufacture, buy and sell hose supporters, webbing articles and plastic articles.

HANCOCK TIRE CO., INC., February 9, 1926 (New York), capital $10,000. Incorporators: Louis Basson, 645 Eastern Parkway; Aaron Meyerowitz, 1146 President street, both of Brooklyn, New York and Adele Lowell, 27 William street, New York City. Principal office, Brooklyn, New York. Bus tires.

HORN SHOE CO., March 17, 1926 (Massachusetts), capital $50,000. Incorporators and officers: Everett H. Borofski, president, 17 Rogers avenue; Morris Crosky, treasurer, 24 Crosby street; Henrietta M. Warde, clerk, 51 Bay View avenue, all of Lynn, Massachusetts. Principal office, Lynn, Massachusetts. To manufacture, buy, sell and deal in rubber goods of all kinds, boots, shoes, etc.

THE HOUSE OF SERVICE TIRE CO., November 1, 1925 (Kentucky), capital $5,000. Officers: William A. House, president; R. S. Logan, secretary and treasurer. Principal office, 666 South Third street, Louisville, Kentucky. Tire merchandising both wholesale and retail, repairing and vulcanizing. Also distributers for the Hood Rubber Products.

INDIA AGENCY CORPORATION, March 1, 1926 (New York), capital 100 shares no par value. Incorporators: Nathan C. Wolf, 20 Lakeside Drive, Baldwin, Long Island; George Brody, 1076 East 15th street, Brooklyn, New York and Milton S. Ward, 726 Eighth avenue, New York City. Principal office, Manhattan, New York. Rubber and oriental products.

MITZEL GOLF BALL CORPORATION, April 9, 1926 (New Jersey), capital $50,000 preferred stock of the par value of $25 per share, and 35,000 shares common stock, no par. Incorporators: Augustine Davis, 8th and Henderson streets; Kathryn C. Madden and Harvey F. Mitzel, all of Jersey City, New Jersey. Principal office, 480 Henderson street, Jersey City, New Jersey. To manufacture rubber goods and accessories, golf balls and equipment, etc.

MULLEN TIRE & SUPPLY CO., March 16, 1926 (Wisconsin), capital 250 shares of $100 each. Incorporators: David Mullen, Abe Mullen and Rudolph Mullen. Principal office, Sheboygan, Wisconsin. To buy, sell, and otherwise deal in automobile accessories, parts, supplies, and tires of all kinds.

NEVINS TIRE & SUPPLY CO., February 24, 1926 (New York), capital $20,000. Incorporators: Harry Sieven, 280 East 2nd street; Nathan Sieven and Samuel Sieven, both of 645 East 4th street, all of Brooklyn, New York. Principal office, Brooklyn, New York. Auto equipment.

R. W. RHOADES METALINE CO., INC., April 1, 1926 (New York), capital $75,000. Incorporators and officers: Richard W. Rhoades, president; Alvan T. Payne, vice-president; B. Richard Rhoades, treasurer; Frank W. Britt, secretary; Willard Crippen, general manager and William A. Perry. Principal office, West avenue and 3rd street, Long Island City, New York. To manufacture and sell rubber stopples and other rubber molded goods.

S. & D. TIRE WORKS, INC., April 12, 1926 (New York), capital $10,000. Incorporators: William Stessin and Sylvia Stessin, both of 1425 Vyse avenue; Max Davidson, 1075 Longfellow avenue, all of Bronx, New York. Principal office, Bronx, New York. Auto tires, etc.

A. C. SCHWARZ CO., INC., February 17, 1926 (New York), capital $10,000. Incorporators: Jacob N. Robins, I. B. Rosenstadt and Pincus Berner, all of 25 West 43rd street, New York City. Principal office, Manhattan, New York. Auto tires and equipment.

SPRING SERVICE CORPORATION, April 12, 1926 (New York), capital $20,000. Incorporators: Lily Seitz, 582 East 2nd street; Solomon Michael, 5813 18th avenue, and Morris Honig, 1136 Lincoln Place, all of Brooklyn, New York. Principal office, Brooklyn, New York. To manufacture auto tires.

STEDFAST RUBBER CO., March 30, 1926 (Massachusetts), capital $50,000 preferred stock and one thousand shares of common stock without par value. Incorporators and officers: William H. Sydeman, president; 222 Fourth avenue, New York City; Abraham Sydeman, treasurer, 176 Federal street and Benjamin A. Trustman, clerk, 161 Devonshire street, both of Boston, Massachusetts. Principal office, Boston, Massachusetts. To manufacture, buy, sell and deal in articles made in whole or in part of rubber.

STRITTMATTER-KLEM, INC., April 16, 1926 (New Jersey), capital $125,000. Incorporators and directors: William Strittmatter, president, and William Strittmatter, Jr., secretary and treasurer, both of 325 34th street, Woodcliff, New Jersey; Francis E. Klem, vice-president, 220 South street, Jersey City, New Jersey. To sell automobiles, accessories, etc.

TRIANGLE TIRE CO., INC., April 9, 1926 (New York), capital 100 shares preferred stock par value $100 and 100 shares common stock no par value. Incorporators: William H. Taylor and I. C. Taylor, both of 87 Delham avenue and Edward Y. Gemmill, 76 Delham avenue, all of Buffalo, New York. Principal office, Buffalo, New York. To manufacture tires, etc.

The Rubber Trade in the East and South

The rubber trade of New York placed the final seal of its approval upon the Rubber Exchange of New York yesterday when a group of the largest importers and dealers in the city joined the exchange. The group which now become members of the exchange includes the following:

Poel & Kelly, Inc., Meyer & Brown, Inc., Littlejohn & Co., Inc., Schmoll, Stiles & Reid, Inc., Isaac Winkler & Bro. Co., J. T. Johnstone, Haldano, Bierrie & Co., Inc., Baird Rubber & Trading Co., Inc., and H. A. Astlett & Co.

At the recent annual meeting of the Intercontinental Rubber Co., 120 Broadway, New York, N. Y., the following officers were chosen: George H. Carnahan, president; Henry G. Atwater, vice-president; Willard P. Smith, secretary and treasurer; Grace Harrington, assistant secretary; John Miller, assistant treasurer.

The Monroe Sander Corporation, 47-02 Fifth street, Long Island City, New York, has become allied with the National Varnish Co., and is prepared to supply the rubber trade with a full line of varnishes, enamels, lacquers, etc. Monroe H. Sander heads the new company.

On February 15, 1926, the I. B. Kleinert Rubber Co., 485 Fifth avenue, New York, N. Y., elected the following officers for the ensuing year: Victor Guinzburg, president; Ralph K. Guinzburg, vice-president; Charles B. Mergentime, treasurer; Arthur B. Salinger, secretary; George K. Guinzburg, assistant secretary; Harry I. Kleinert, second vice-president.

The resignation is announced of Werner S. Hammesfahr, member of the firm formerly known as Henderson, Helm & Hammesfahr, Inc., 44 Beaver street, New York, N. Y. Business will be continued at the address mentioned under the name of Henderson, Helm & Co., Inc.

The Benzine Condensation Co., manufacturer of solvent recovery equipment, has removed from 15 Park Row to 152 West 42nd street, New York, N. Y.

The Watson-Stillman Co., specializing in the manufacture of hydraulic presses, valves, pumps, and various fittings for use by the rubber industry, announces that on and after May 1, 1926, its main offices and sales department will be located in the Evening Post Building, 75 West street, New York, N. Y.

A. Herring-Shaw, general manager of The Peachey Process Co., Ltd., London, England, is now in the United States for the purpose of concluding contracts or licenses for the Peachey process which have been negotiated by The Grasselli Chemical Co., 347 Madison avenue, New York, N. Y. H. H. Replogle is in charge of the Grasselli organization's rubber service department.

The R. W. Rhoades Metaline Co., Inc., West avenue and Third street, Long Island City, New York, is continuing the business carried forward for nearly thirty-two years as the R. W. Rhoades & Co., proprietors of the Rubber Stopple Co. The new organization, which is headed by R. W. Rhoades, will continue as in the past to manufacture rubber stopples and other rubber molded goods.

On May 5 at 12 o'clock, noon, the entire property of the Beacon Tire Co., Beacon, New York, including four parcels of real estate, machinery, trade rights, etc., will be sold at public auction by David B. Costuma, receiver in equity.

George B. Dickerson has resigned his duties with The Gutta Percha & Rubber Manufacturing Co., 240 Kensington avenue, Buffalo, New York, intending, after a period of rest, to be again identified with the mechanical rubber goods trade. In February, 1916, he was elected treasurer of the Gutta Percha & Rubber organization, coming to the company from the New Jersey Car Spring & Rubber Co., where he had served as vice-president.

The annual sales conference of the Pennsylvania Rubber Company of America, Inc., which was held during the second week of March at the company's factory at Jeannette, Pennsylvania, proved

Branch Managers and Executives of the Pennsylvania Rubber Co., Jeannette, Pennsylvania

to be a most helpful and constructive session. Among the executives attending were: G. W. Daum, vice-president and general manager; G. W. Shively, secretary; A. H. Price, treasurer; C. G. Morrill, assistant treasurer; L. J. Waldron, sales manager; H. H. Salmon, purchasing agent; and E. W. Booz, factory manager.

The Star Rubber Co., Inc., Akron, Ohio, has made warehouse arrangements with the Rex Tire & Rubber Co., 336-338 North Fifteenth street, Philadelphia, Pennsylvania, the latter organization to ship Star products to points in western Pennsylvania as well as a part of New Jersey.

The Philadelphia Rubber Works Co., Akron, Ohio, is building a factory at Oaks, Pennsylvania, which is designed to produce 2,000,000 pounds of reclaimed rubber monthly. The plant, which is being fully equipped in order to take care of the company's eastern business, will be in full operation about November 1. J. S. Lowman is first vice-president.

The Sponge Rubber Products Co., 75 Daggett street, New Haven, Connecticut, has purchased a factory in Derby, Connecticut, and during the month of May will move its offices and business to that town. The New Haven plant has been running overtime since January 1 and the new factory will provide room for expansion.

The Cord Tire Corporation, Chester, West Virginia, manufacturer of Superior tires, is now also producing the Crane cord tires and tubes. The company reports business as satisfactory, with good prospects for spring sales.

Martin L. Cannon, president and treasurer of the Cabarrus Cotton Mills, Concord, North Carolina, manufacturer of tire fabric, has resigned. E. Sauvain, secretary of the organization, was recently elected treasurer. Pending the election of a new president, sales will be made as heretofore through Cannon Mills, Inc., under the personal supervision of Herbert G. Mortland, 70 Worth street, New York, N. Y., and A. Walter Reid, Chicago Office, 327 South LaSalle street, Chicago, Illinois.

The Cassidy Tire Co., Inc., 405 East Broadway, Louisville, Kentucky, handles Seiberling products exclusively. Alvin I. Cassidy, sales manager, was formerly connected with the Goodrich organization, and later was representative for the Miller Rubber Co. in Central Kentucky and Eastern Indiana.

The Peaslee-Haulbert Co., Louisville, Kentucky, tire jobber, reports that Stuart E. Duncan has been elected president, succeeding L. R. Atwood, deceased. Mr. Duncan has been connected with the organization in various capacities for over forty years.

The Link-Belt Co., 910 South Michigan avenue, Chicago, Illinois, is opening a new Florida branch office which will be in charge of Nelson Brandt. Mr. Brandt will make his headquarters in the vicinity of Jacksonville, his territory for both engineering and merchandising material covering the state of Florida.

The Archer Strauss Rubber Co., Framingham, Massachusetts, has enlarged its New York City offices and has taken new quarters in the Fifth Avenue Building, 200 Fifth avenue. This division will serve both the Archer Strauss Rubber Co. and the Hodgman Rubber Co., Inc.

S. T. Hodgman With Archer Rubber Co.

S. T. Hodgman, for many years an executive of the Hodgman Rubber Co., is now connected with the Archer Rubber Co., Milford, Massachusetts, specializing in the manufacture of fine rubber fabrics, and is in charge of its New York branch, at the Fifth Avenue Building, 200 Fifth avenue. Associated with him are the following, all of whom were with the Hodgman Rubber Co. for over twenty-five years: E. M. Barrett, who will continue to cover his former territory of New York and Pennsylvania; Frank Hague, who will cover Brooklyn and the state of New Jersey; and F. G. Burgess, who will represent the Archer organization in Boston and other New England cities. During the past year the Archer company built a large addition to its factory which is now in full operation.

Rhode Island Notes

The following officials, heads of departments and employes of the National India Rubber Co., Bristol, Rhode Island, have been sufferers from the epidemic of the grip that has prevailed throughout the State during the past two months: Maurice I. Smith, Jr., manager of the plant; Edward A. Currier, manager of the Industrial Relations Department; Miss Evelyn M. Carter, assistant manager of the same department; George E. Shaw, superintendent of wire production; William J. Cantwell, in charge of the planning department, and Vinal N. Hastings, in charge of the chemical department.

The United States Tire Co., 1790 Broadway, New York, N. Y., has removed its Providence warerooms from the Jackson building, corner of Westminster and Jackson streets, to larger and more centrally located quarters at Aborn and West Exchange streets.

A Faithful Employe for Sixty Years

James Allyn, the oldest employe in point of service in the factory of the National India Rubber Co., Bristol, Rhode Island, with whom he had been associated for the past sixty years, died at the Rhode Island Hospital in Providence, on March 22. He was born in Bristol, August 7, 1854, and entered the employ of the old National Rubber Co., now the National India Rubber Co., as an office boy in 1866. Later he was transferred to the calender room where his left hand became entangled in the machinery and amputation of the arm was necessary. The company sent young Allyn to a university in western New York and on his return the late Augustus O. Bourn, who was at that time treasurer of the company, presented him with a cornet and he was elected leader of the Bristol Cornet Band which he held for 25 years. In 1879 Mr. Allyn was appointed one of the special constables at the rubber plant, and during his long career as a watchman he was on duty eleven hours every day, including Sundays and holidays, and never lost a single day. For the past six years Mr. Allyn was employed as a weigher at the large platform scales in the factory yard of the National Company.

The Rubber Trade in New Jersey

April was a fairly good month for New Jersey manufacturers although some concerns reported the usual slacking off on orders for seasonal goods. Mechanical rubber production of certain staples was particularly large during the past month. Many of the larger municipalities have let contracts for hose which for the greater part are being turned out by Trenton Plants. The tire situation has improved somewhat during the past two weeks and orders for tires and tubes are increasing as the motoring season approaches. Hard rubber producers report increasing activity in all specialty lines.

William J. B. Stokes, treasurer of the Thermoid Rubber Co., Trenton, New Jersey, and Mrs. Stokes have returned from Florida, after a sojourn of six weeks.

Business has dropped off a little at the Essex Rubber Co., Trenton, New Jersey, but this is nothing unusual at this time of the year. The company specializes in rubber heels and soles and also manufactures tank balls, quoits and other mechanical goods. Two new buildings are being erected to take the place of those destroyed by fire last winter. One will be 250 by 65 feet, one story, to be used exclusively as a mill room. The other will be two stories, 250 by 55 feet, the first floor to be used as a cutting room, machine shop, and store room, while the second floor will be devoted to trimming and packing. Both buildings will cost $83,000.

Horace B. Tobin, president of the Woven Steel Hose & Rubber Co., Trenton, New Jersey, and family have been spending some time in Washington, D. C.

The Thermoid Rubber Co., Trenton, New Jersey, reports that

business is good in all departments while orders for brake lining have increased to some extent. It is expected that there will be a change in officials shortly because of the death of J. Oliver Stokes, who was president of the concern, and also treasurer of the Joseph Stokes Rubber Co. At present the offices in both concerns are being temporarily filled by other officials.

Whitehead Brothers Rubber Co., Trenton, New Jersey, reports business as being very good in all lines.

The Murray Rubber Co., Trenton, New Jersey, recently took its annual inventory and while this was going on some of the departments were closed for several days.

Fire recently caused slight damage in the cement room of the Combination Rubber Co., Trenton, New Jersey.

Philip McGrory, Trenton, New Jersey, dealer in calenders, vulcanizers, presses, and other kinds of rubber machinery, announces that he will shortly retire from business, and is disposing of his large stock of machinery.

Albert Numbers, president of the Standard Cord Tire Co., Trenton, New Jersey, recently gave an address on "The Reduction of Rubber and the Manufacture of Automobile Tires" before the members of the Trenton Civitan Club.

The Combination Rubber Co., Trenton, New Jersey, announces that business is on the increase and a good summer is in sight. The company has booked some good sized orders from its various agencies throughout the country.

Suit has been filed by the Murray Rubber Co., Trenton, New Jersey, in the United States District Court at Trenton against Sears, Roebuck & Co., of Chicago, for $4,927.16 which the Murray company claims is for profits lost by breaking of a contract which still has, the plaintiff claims, two years and nine months to run.

The Raritan Rubber Co., recently incorporated at Trenton with $200,000 capital, has purchased the plant of the Placement Co., New Brunswick, New Jersey, and will manufacture solid truck tires. Seventy-five hands will be employed. Orders have been placed with the William R. Thropp Sons Co., Trenton, New Jersey, for rubber machinery.

C. C. Alexander, general sales manager of the Lambertville Rubber Co. and the Goodyear Rubber Co., recently resigned and returned to the Converse Rubber Co., Malden, Massachusetts. His official position with the Converse company now is executive representative, and he will make his home in Philadelphia, Pennsylvania.

A Growing Hard Rubber Company

The Superior Hard Rubber Co., Butler, New Jersey, was organized in 1919 by Isaac Q. Gurnee, the property at present comprising eight acres of land and a factory well equipped for the manufacture of druggists' sundries, smokers' articles, radio and magneto parts, novelties, etc. The officers of the organization, who have spent most of their lives in the hard rubber business, are the following: Isaac Q. Gurnee, president and treasurer; Albert A. Smith, vice-president and factory manager; Eugene C. Gurnee, second vice-president; Jesse A. Cole, secretary; and William D. Delazier, assistant treasurer.

Mr. Gurnee was for forty years associated with the Rubber Comb & Jewelry Co., and its successors the Butler Hard Rubber Co., and the American Hard Rubber Co., resigning in 1919 from the last-mentioned organization in order to establish the Superior Hard Rubber Co. Mr. Smith also spent many years with these two concerns, resigning in 1919 from the American Hard Rubber Co. for the purpose of organizing the hard rubber department of the Seamless Rubber Co., New Haven, Connecticut, while Mr. Cole, secretary and sales manager of the Superior company, has for the past twenty-five years been interested in the sale of druggists' sundries. Executives of the Superior organization report that sales have doubled during 1925, while the company's future prospects are said to be most encouraging.

The Rubber Trade in Massachusetts

While the prolonged winter season retarded tire sales considerably, it depleted footwear stocks and laid the foundation for a good volume next winter, although tennis demand this summer is not expected to be very heavy. All the shoe mills in this section are running full time with capacity tickets; Hood reached a high water mark of production last month when the ticket reached 91,000 pairs of shoes a day. This is believed to be the largest number of rubber shoes ever put out in one factory in a day.

The United States rubber plants, the Boston Rubber Shoe Co., Malden and Melrose, and the American Rubber Co., Cambridge, Massachusetts, are running full time. Converse in Malden resumed operations April 3 after an inventory shutdown with a full ticket on a 5½ day week schedule; Cambridge and Tyer report a large number of orders on the books. Firestone-Apsley has been advertising for both skilled and unskilled workers to take care of increased production.

Federal Reserve figures show that sales of wholesale shoe concerns during February were greater than that month for the two previous years, due largely to the heavy rubber footwear sales, as leather shoes were behind a year ago. Rubber heel and sole manufacturers report fair business, although the sole demand is still very light.

Godfrey L. Cabot, Inc., 940 Old South Building, Boston, Massachusetts, specializing in the production of carbon black, is doubling the size of one of its factories and increasing the capacity of another by 50 per cent. Both of these plants are at Cabot, near Seth, West Virginia, while adjacent to them are over 20,000 acres of natural gas lands, the property of the Cabot organization. The company is also building two new carbon black factories in Texas, as well as making additions to its Montana plant.

Eugene H. Clapp, treasurer of the E. H. Clapp Rubber Co., Boston, Massachusetts, recently returned from a winter's sojourn in South America, the greater part of which was spent in Chile.

The General Tire & Rubber Co., Akron, Ohio, through its Boston retail branch, 560 Commonwealth avenue, E. C. Newcomb, manager, has been advertising a trade-in proposition on tires whereby an allowance is made for tires removed and replaced with General cords. Patrons also have the privilege of opening charge accounts on their tire purchases.

The Archer Strauss Rubber Co., Framingham, Massachusetts, has incorporated the Hodgman Rubber Co. of Massachusetts, having purchased the assets and good-will of the Hodgman Rubber Co. Considerable machinery from the Tuckahoe factory is being installed in the Framingham plant, while production of rubber bands, rubber sheeting, and other coated fabrics, will soon be resumed. The entire capital and stock of the Hodgman Rubber Co., Inc. will be handled by the Archer Strauss Rubber Co., but the two organizations will operate as two separate selling units.

James H. Stedman, president of the Stedman Products Co., South Braintree, Massachusetts, sailed on April 17 for Europe where he will investigate the rubber pavement situation. His trip will be of six weeks' duration with visits to London, Paris, Berlin, and the Hague.

Fisk Rubber Co., Chicopee Falls, Massachusetts, has abandoned the spring dating practice of shipping tires to dealers with extended payment privileges. While March sales were 10 per cent over those of a year ago and profits increased in slightly greater proportions, stocks of manufactured goods showed a slight increase.

The Firestone-Apsley Rubber Co., Hudson, Massachusetts, specializing in the production of rubber footwear, has recently opened offices in the Crocker Building, 210 Lincoln street, Boston, Massachusetts.

The bowling league of the Hood Rubber Co., Watertown, Massachusetts, held its annual banquet at Ford Hall, Boston, on Thursday evening, April 15, with over 500 executives and employes in

attendance. Frederick C. Hood, president of the company, awarded the various individual cups and team prizes for the year.

Gleasonite Products Co., Brockton, Massachusetts, manufacturer of heels and soles, will erect a 60 by 40 building to enlarge plant facilities. The company has enjoyed a good business for the last year, and Fred J. Gleason, president, looks upon the present lull in heels and soles as temporary.

L. A. Laporte, formerly sales manager of the New England Tire & Rubber Co., Holyoke, Massachusetts, manufacturer of Holyoke cord tires, has been appointed one of the assignees in the insolvency proceedings in this concern. The plant has not been in operation since May, 1925, when the firm failed.

Charles H. Traiser, Readville, Massachusetts, president of the Elmhurst Rubber Co., Elmhurst, Long Island, recently returned from Florida after a short visit. He reports the Elmhurst company running night and day on a capacity production of hot water bottles, bathing caps, and other specialties.

The Boston Woven Hose & Rubber Co., Cambridge, Massachusetts, saves $15,000 per year in freight charges by a new distribution system in shipping goods to the midwest. By an arrangement with a warehouse and transfer company in Chicago, the company's products are shipped in full carloads to that point, then broken up into less carload lots for local distribution.

International Textile Exposition

Among the exhibitors at the recent International Textile Exposition held in the Mechanics Building, Boston, were the following: Allis-Chalmers Manufacturing Co., Milwaukee, Wisconsin; The Bristol Co., Waterbury, Connecticut; H. W. Butterworth & Sons Co., Philadelphia, Pennsylvania; Cameron Machine Co., Brooklyn, New York; Carrier Engineering Corporation, Newark, New Jersey; Cooper Hewitt Electric Co., Hoboken, New Jersey; Curtis & Marble Machine Co., Worcester, Massachusetts; E. I. du Pont de Nemours & Co., Inc., Boston, Massachusetts; National Aniline & Chemical Co., Inc., New York, N. Y.; Taylor Instrument Co., Rochester, New York; C. J. Tagliabue Manufacturing Co., Brooklyn, New York; Toledo Scale Co., Toledo, Ohio; and Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania.

The Rubber Trade in Ohio

Rubber factories in Ohio continued to increase tire production during April, although sales were retarded somewhat by bad weather in many sections of the country. While total output is still behind that of the same period last year, business in the second quarter of the year will probably compare favorably with 1925. Most of the rubber companies, which had curtailed operations during February and early March, are now working full time on a three-shift basis. A number of new employes have been taken on in the last few weeks in tire building departments.

In the Akron district, total output of tires is estimated around 130,000 casings a day, compared with about 100,000 in February. Operations at the Goodyear, Goodrich, Firestone and Miller plants, which were curtailed in some departments, are now on a six day a week basis. Seiberling, India, Mohawk, Mason and other smaller concerns have increased production from 15 to 25 per cent. Unofficial reports of production at the leading Akron factories reveal gains all along the line. Goodyear is manufacturing more than 40,000 tires a day, Firestone around 33,000, Goodrich more than 20,000 and Miller about 8,000. Goodyear recently booked an order for nearly $1,000,000 worth of tires from Sears, Roebuck & Co., and Goodrich has obtained nearly the same amout of business from Butler Brothers. Most of the casings to be manufactured for these concerns are of the so-called second grade type.

The price situation is looming again as an adverse factor in the industry. Conditions are just the reverse of what they were last spring, when the retail trade was eager to place orders for tires because prices were advancing. Now that the trend of the rubber market and tire prices is downward, dealers are buying strictly on a hand-to-mouth basis. Although the manufacturers are non-committal regarding their plans for future tire prices, it is generally believed that a reduction probably will be made within the near future, in view of the drastic decline in the crude rubber market.

With spot rubber selling well below 50 cents a pound and futures around 45 cents, it is pointed out that current tire prices, which are about 50 per cent higher than those prevailing at the same time last year, cannot be much longer maintained. The first of a series of advances in tire prices was made last May 1, when rubber was selling around 45 cents a pound. There was more factory buying apparent in the rubber market during the latter part of April, according to Akron brokers, which served to steady quotations.

Officials of the General Tire & Rubber Co., Akron, Ohio, announce that operations have been resumed on full time schedules, and that production is close to capacity. Earlier in the year the factory was only working three and four days a week. The slump in retail tire sales in February and March was attributed largely to the uncertain price situation and adverse weather conditions. There was also some recession in original tire equipment business.

E. G. Wilmer has resigned as chairman of the board of the Goodyear Tire & Rubber Co., Akron, Ohio, in order to assume his duties as president of Dodge Bros., Inc., Detroit, Michigan, of which organization he was formerly chairman. In July, 1921, Mr. Wilmer succeeded Frank A. Seiberling, under a reorganization plan, as president of the Goodyear company.

Sales of the Seiberling Rubber Co., Akron, Ohio, during the first quarter of this year were 25 per cent larger than the same period in 1925, it is announced by President F. A. Seiberling. The company is manufacturing approximately 3,500 tires a day, compared with about 3,000 at the beginning of April, and 3,300 at this time last year. It is expected that a peak production of 4,000 tires a day may be reached by June. Contracts for original tire equipment business have been obtained from the Marmon, Chrysler and Packard motor car companies, in addition to many orders for bus tires.

The new rubber reclaiming plant of the Miller Rubber Co. Akron, Ohio, was placed in operation April 19, with Newton C. Miner as general manager. Between 150 and 200 men are employed. Practically all the reclaimed rubber required by the Akron company will be produced by the subsidiary.

The Henry L. Scott Co., Blackstone and Culver streets, Providence, Rhode Island, manufacturer of testing machines, has appointed Professor H. E. Simmons of the Akron University as the company's representative in Akron, Ohio. A room at the university will be devoted to the display and demonstration of Scott testers.

H. Muehlstein & Co., 42nd street and Madison avenue, New York, N. Y., specializing in crude and scrap rubber, is building a new plant in Akron, 330 by 60 feet, and containing 30,000 square feet of floor space. A. Schulman is in charge of the new establishment.

The Akron Rubber Mold & Machine Co., Akron, Ohio, has made an arrangement with the Allen Machine Co., Erie, Pennsylvania, in order to represent in the state of Ohio the last-mentioned company's entire line of rubber working equipment. Charles F. Safreed is now associated with the Akron organization as assistant sales manager for the line of mills, calenders, and general rubber mill machinery as manufactured by the Allen company. Mr. Safreed was formerly associated with The B. F. Goodrich Co., and later with the Adamson Machine Co.

Hank Gillen, superintendent of production service at the plant of the Goodyear Tire & Rubber Co., Akron, Ohio, was the first to receive from the hands of the new president of the organization, Paul W. Litchfield, his service pin, indicating his twenty-five years of employment by the company. Mr. Gillen began work in 1901 as a packer of carriage tires, becoming in 1911 the general foreman of solid tire manufacture, while in 1914 as division superintendent he was in charge of various departments including solid tires, accessories, bicycle and motor cycle tires, as well as the repairing section.

The Lincoln Rubber Co., Akron, Ohio, specializing in the manufacture of surgeons' and household rubber gloves, has during the past year developed an improved process whereby many of the former defects in production can be eliminated. The organization reports an advance in output, the installation of additional equipment, and an increase in working capital. E. E. McNeely is in charge of factory production.

The C. P. Hall Co., 118 Central Savings & Trust Building, Akron, Ohio, has been appointed midwestern sales agent exclusively for the clays used in the rubber industry as manufactured by Thompson, Weinman & Co., Inc., 52 Vanderbilt avenue, New York, N. Y.

Engineers of The B. F. Goodrich Co., Akron, Ohio, have perfected a new process for vulcanizing soft rubber to metal, which may revolutionize the manufacture of solid tires. Vulcalock treated rubber will adhere to solid tire bands without the usual hard rubber base. It will also adhere to an aluminum surface, and may be used in making water tight coverings for pontoons and for mill and factory chutes, where there is heavy abrasion. In the latter case the rubber is said to have forty times the wearing qualities of steel.

A program for enlarging its plant capacity and which calls for an expenditure of approximately $300,000 within the next few months has been instituted by The Inland Manufacturing Co., Dayton, Ohio. The company manufactures automobile steering wheels and rubber parts, and is a division of the General Motors Corporation. The present capacity of 6,000 wheels a day will be increased by 25 per cent, and facilities provided for the manufacture of both hard and soft rubber automotive parts. W. S. Whitaker is president and general manager.

G. W. Spahr, general sales manager of The Dayton Rubber Manufacturing Co., Dayton, Ohio, has been visiting the Pacific Coast, where he has been instrumental in appointing Eugene W. Bernard as manager of the company's Los Angeles branch.

Executives of The Cooper Corporation, Cincinnati, Ohio, state that last year's business was the best in the history of the organization. The company, which manufactures tires and batteries, maintains general offices in Cincinnati, with factories at Findlay and Madisonville, Ohio. During the present year a new branch and warehouse has been opened at 204 Spring street, Atlanta, Georgia, under the management of T. L. Matthews, and another at 507 Flamingo Drive, West Palm Beach, Florida, in charge of H. W. Goddard, both branches operating under the name of the Cooper Tire & Battery Co. Still another division, under the name of The I. J. Cooper Rubber Co., is being maintained at Dayton, Ohio, H. L. Burns being manager.

A new factory has been built for The Par Rubber Co., Bowling Green, Ohio, and in April the organization began its production of toy balloons and various rubber novelties. A. D. Wismar is president, while L. J. Johnson, vice president and factory manager, served from 1916 to 1925 in similar capacities with the Perfection Rubber Co., Cleveland, Ohio.

The E. & J. Motor Supply Co., Canton, Ohio, is now carrying forward six stores in northern Ohio, two in Akron, and others in Massillon, Alliance, and New Philadelphia, the Canton establishment being the company's headquarters. Brunswick tires and standard lines of automobile accessories are handled in each of the divisions. A. R. McConnell, president of the organization, was formerly connected with certain well-known rubber companies, and was at one time secretary and treasurer of the Knight Tire & Rubber Co.

With the installation of additional machinery The Pharis Tire & Rubber Co., Newark, Ohio, is now in a position to manufacture 3,500 tires daily, while the inner tube output will be approximately 3,000 daily. Organized in 1912, the company has gradually increased its capitalization from $25,000 to $1,000,000. A. R. Lindorf is president and Carl Pharis is general manager of the company.

The Oak Rubber Co., Ravenna, Ohio, which specializes in the manufacture of toy balloons and novelties, is celebrating its tenth birthday. The present factory output is more than 300,000 balloons a day.

The Fidelity Tire & Rubber Co., recently purchased the factory of the Denman-Myers Cord Tire Co., Warren, Ohio, the Fidelity organization being transferred intact from Massillon to Warren. High pressure and balloon tires will be manufactured, in addition to the Ford tire sizes in which the Fidelity company has specialized. A full line of Denman-Myers cord tires will also be continued, these being marketed through the Denman Cord Tire Co. George C. McConnell is in charge of Fidelity plant operations and C. E. Pumphrey is general sales manager.

New President of Goodyear Association

On April 1 Paul W. Litchfield, vice-president of the Goodyear Tire & Rubber Co., Akron, Ohio, was elected president of that organization, succeeding the late G. M. Stadelman. Associated with the Goodyear interests for more than a quarter of a century, Mr. Litchfield, as vice-president and factory manager, has done much to increase his company's prestige, while he has also been influential through his studies of industrial relations and welfare work.

Paul W. Litchfield

Born in Boston, Massachusetts, in 1875, Mr. Litchfield was educated in the public schools and English High School of that city, while in 1896 he was graduated from the Massachusetts Institute of Technology with a B. Sc. degree in chemical engineering. After a brief service with the Massachusetts Metropolitan Park Commission, he entered the employ of L. C. Chase & Co., Boston, manufacturer of tire and carriage cloth, making there his first acquaintance with the rubber industry. His next connection was with the New York Belting & Packing Co., Passaic, New Jersey, later becoming associated as superintendent with the International Automobile & Vehicle Tire Co., which organization became later known as the Michelin Tire Co., now located at Milltown, New Jersey.

In 1900, Mr. Litchfield joined the Goodyear Company as factory manager in which position he continued to show remarkable executive capacity, notwithstanding his ever-increasing responsibilities. In his capacity as engineer Mr. Litchfield is responsible for various improvements in the industry, having actively participated in the development of the straightside tire, cord and balloon casings, and pneumatic bus and truck tires.

A member of the Rubber Association of America, Mr. Litchfield served as a director in 1917, while he is also a member of the

Society of Automotive Engineers, before which latter organization he read in 1915 a paper entitled "The Size and Inflation of Pneumatic Tires," a contribution which is still considered by the rubber industry as a standard treatise. A Knight Templar, Mr. Litchfield is also connected with the Rotary Club, the Akron City Club, and the Akron University Club.

Founder of the Cooper Corporation

I. J. Cooper, the president and founder of The Cooper Corporation, Cincinnati, Ohio, was born in Verona, Ohio, October 12, 1874. Educated in the common schools of that town, he commenced his business career as a salesman for Morgan & Wright, Chicago, Illinois, while in 1904 he established his own concern, the present Cooper Corporation. In its manufacture of tires and batteries the company soon began to prosper, and is now maintaining two factories, one at Findlay and the other at Madisonville, Ohio. When asked regarding the plan and policy on which he had built up his organization Mr. Cooper said:

I. J. Cooper

"It wouldn't be called a plan or policy perhaps by a high powered modern business expert, because it isn't complicated enough. In fact it's very simple. Our platform has only three planks in it —just 'good merchandise, fair prices and a square deal.'

"Good merchandise because it doesn't pay to make, sell or use an inferior article. Fair prices, that satisfy the user, leave the dealer with a profit and the maker with a margin to cover his labor, thought and investment. And a square deal to every one, every time, because you can't beat a natural law and still progress and prosper."

Mr. Cooper has a host of friends, and is greatly beloved by his business associates and employes. He is a Mason, a member of the Cincinnati Chamber of Commerce, and is also connected with the following organizations: The Cincinnati Club, the Cincinnati Country Club, the Maketewah Country Club, and the Queen City Club.

Sixth Anniversary of Goodyear Hall

Goodyear employes celebrated the sixth anniversary of the dedication of the Goodyear Hall in East Akron, on April 15, 16 and 17. Clifton C. Slusser, production manager of Goodyear, told the workers that no industry can survive unless its employes are given fair treatment. He compared the factory to a home. Good common sense economy is needed if we are to survive, said Mr. Slusser.

"Goodyear Hall was built for your progress and welfare, and our belief in education is firm." Mr. Slusser announced at the close of his talk that Winfield J. Gaffney was the winner of a year's scholarship at the Goodyear Industrial University, since the judges selected his slogan for the school: "Be Prepared, It Pays."

Goodyear Clearwater Mills

Goodyear Clearwater Mills at Cedartown, Georgia, is the latest cotton fabric manufacturing unit established by the Goodyear Tire & Rubber Co., Akron, Ohio. The mills were purchased from the Cedartown Cotton & Export Corporation, and equipment from fabric mills purchased earlier in the year at Passaic, New Jersey, will be moved to Cedartown, and installed in a projected new building, two stories high, 500 by 140 feet. About 100 houses will be erected for mill workers, numbering approximately 600. C. I. Parmenter is superintendent of the Clearwater Mills, and Harry Lorton assistant treasurer.

The Cedartown unit will be the largest of five now operated by Goodyear and its subsidiaries. The factory buildings, equipped with 30,000 spindles, will occupy 300,000 square feet of floor space. Square woven fabric for breaker strips will be the principal output. Goodyear now controls five fabric mills in the south, east, California and Canada, with a total capacity of more than 150,000 spindles. The combined production will supply tire yarn and fabric for two-thirds the requirements of its three large tire manufacturing plants.

Chemical Equipment Manufacturers Plan Second Exposition

The Second Chemical Equipment and Process Engineering Exposition will be held in the Public Hall, Cleveland, Ohio, from May 10 to 15, inclusive. The Associated Technical Societies of Cleveland are joining with the Association of Chemical Equipment Manufacturers in the preparation of an unusual and interesting program. Among the speakers at the various sessions are: H. H. Dow, president of the Dow Chemical Co., Midland, Michigan, who will take as his subject "Diphenyl Oxide Bi-Fluid Power Plants;" and B. W. Rogers, of the Linerite Division, The B. F. Goodrich Rubber Co., whose address is entitled "Rubber Lining for Grinding Mills and Other Chemical Equipment."

Goodrich Announces Resignation of E. C. Shaw

E. C. Shaw, who recently completed thirty years of service with The B. F. Goodrich Co., Akron, Ohio, tendered his resignation as a member of the board of directors at the company's annual meeting. From 1907 to 1917 he was vice-president and general manager of the Goodrich organization, many of whose achievements were due to his foresight and executive ability. Mr. Shaw had always taken a deep interest in the community life and welfare of Akron, one of his activities being the management of the Springfield Lake Sanatorium, near Akron. C. E. Cook has been elected a member of the board to fill the vacancy caused by the resignation of Mr. Shaw. At the company's regular meeting of directors the Goodrich officers were reelected.

Midwestern Notes

The Century Rubber Works, 54th avenue and 18th street, Chicago, Illinois, makers of automobile tires, have recently opened branches at the following locations: 1106 Harmon Place, Minneapolis, Minnesota; 165 West Sixth street, St. Paul, Minnesota; 306 West Pico street, Los Angeles, California; Young and Browder streets, Dallas, Texas; and 184 Spring street, Atlanta, Georgia. The company reports an increase in business during 1925 of 62½ per cent as compared with 1924, while sales during the first two months of 1926 represent a gain of 64 per cent over the same period of 1925. Increase in the output of tires has also necessitated the erection of a new power house, costing with new equipment approximately $100,000. William L. Burgess is manager of sales.

In order to handle larger quantities of scrap rubber The Fritsche Tire & Reliner Co., 1113 South Racine avenue, Chicago, Illinois, has leased 30,000 additional square feet of floor space, and has also installed more machinery for the production of liners, pulled fabric, finisher reliners, patches, etc.

The Midland Rubber Goods Co., Inc., Mascoutah, Illinois, will continue the business formerly maintained by the Midland Rubber Co. of manufacturing and distributing raincoat specialties. The company's plant is well equipped for the production of rubber and rubberized clothing, having a capacity for more than 75,000 garments yearly. John F. Burmeister is president.

The Cupples Co., St. Louis, Missouri, manufacturer of tires and tubes, is celebrating its seventy-fifth anniversary. The plant is being operated on a three-shift schedule, or twenty-four hours a day, this rate of performance having been maintained by the inner tube department since August, 1925. Harry B. Wallace is president of the organization, and Harold Maxwell is vice-president and general manager.

The A. J. Stephens Co., Kansas City, Missouri, has been recently incorporated with a capital of $250,000, having acquired the business formerly maintained by the Rubberstone Manufacturing Co. Three hundred people are at present being employed and the factory is running on a schedule of three eight-hour shifts, in its production of more than 20,000 items daily, including fan belts, patches, reliners, inner tubes, tire flaps, etc. A. J. Stephens heads the new company.

The Cut Rate Tire Corporation, 1524 Grand avenue, Kansas City, Missouri, is carrying on business as a manufacturer, distributer and jobber of tires, with branches at Duluth, Minnesota; Joplin, Missouri; Oklahoma City, Oklahoma; Kansas City, Kansas. Three stores are being maintained in Kansas City, Missouri, as well as the company's main office. Plans are being made for branch stores in Dallas, Texas, and Memphis, Tennessee. Morris Schlechtman is president and J. J. Becker is secretary and treasurer of the concern.

The Watson-Stillman Co., 50 Church street, New York, N. Y., specializing in hydraulic machinery, has established a branch sales office at 7752 Duboise street, Detroit, Michigan. Earle M. Porter has been placed in charge of this new division.

The Chicago Rubber Clothing Co., Racine, Wisconsin, manufacturer of raincoats and allied products, has reorganized and is now under ownership management. The addition of new machinery and other changes in plant equipment will effect a higher degree of manufacturing efficiency. W. T. Harvey is president and Edwin C. Woods is in charge of sales.

The Rubber Trade on the Pacific Coast

C. A. C. Kelly, of the rubber flooring department of The B. F. Goodrich Co., Akron, Ohio, has been making a tour of the coast cities and has given interesting talks over the radio on flooring and other rubber products.

Frank C. Braden, general sales manager of the Hamilton Rubber Manufacturing Co., Trenton, New Jersey, has been making a business trip to the principal coast cities.

According to C. J. Evans, general manager, the Cactus Manufacturing Co., 914 East 59th street, Los Angeles, California, sold over 1,000,000 needle-studded cactus tire boots and patches last year, or double the production of the preceding year. To meet the growing demand offices have been opened in New York, Chicago, Omaha, and New Orleans. For a third time in two years the company has just doubled its factory equipment. P. W. Weeks has been appointed sales manager.

A 35 per cent increase in the sale of mechanical rubber goods and a considerable gain in sales of other rubber articles is reported for April, as contrasted with the same period a year ago, by the Los Angeles branch of the United States Rubber Co., of which J. B. Magee is manager.

The Samson Tire & Rubber Corporation, Los Angeles, California, Adolf Schleicher, president, has for a fourth time been awarded a contract to furnish all pneumatic tires for California state owned cars. It is the only concern west of the Mississippi that has received such an order, it is stated; and the first time such a contract has been awarded to any tire company two years in succession. The value of the contract exceeds $150,000, as it includes not only tires for passenger cars, but also giant pneumatics for trucks and buses.

A contract to supply the Los Angeles fire department with 12,000 feet of 2½-inch double-jacketed hose was secured in April by Manager Horan of the Los Angeles branch of the Pioneer Rubber Mills, San Francisco, California. The Los Angeles branch, which handles a general line of hose, belting, and various mechanical rubber goods, reports gross sales for the past twelve months 55 per cent above those of the preceding twelve months.

The Eno Rubber Co., 1026 South Los Angeles street, Los Angeles, California, of which Roy R. Musser is president, is very busy turning out general mechanicals and many patented rubber novelties.

The Star Rubber Co., Inc., Akron, Ohio, has established warehouse facilities in San Francisco, California, The Decker & Horstmann Co., 141 Grove street, having agreed to ship Star goods to points in northern California, and in the immediate vicinity of San Francisco. H. H. Hill will be in charge of the new division.

Net earnings of the Goodyear Tire & Rubber Co. of California, for 1925 were $3,686,578, as compared with $1,915,947 for 1924. Net sales for 1925 were $24,363,238, as compared with $15,668,065 in 1924. The surplus rose from $2,124,408 in 1924 to $4,691,588 in 1925. On March 31, 1921, there was a deficit of $3,157,762.

Goodyear Textile Mills Co., Los Angeles, California, the entire output of which is taken by the California Goodyear company, made a net profit for 1925 of $230,817, as compared with $225,893 in 1924. The sum of $133,721 was paid in dividends on the preferred stock in 1925; $92,582 was credited to surplus, after transferring to profits a reserve for contingencies of $51,000, and writing off organization expenses of $55,513.

J. R. Reilly, president of the Reilly Rubber Co., 2432-34 East 56th street, Los Angeles, California, will leave in June for Europe with his wife and son. Their pleasure trip will consume about three months.

H. M. Bacon, for sixteen years with The B. F. Goodrich Rubber Co., Akron, Ohio, has been appointed Pacific Coast manager with headquarters in San Francisco, and will have charge of distribution in eleven states.

The plant at Pittsburg, Contra Costa county, California, of the Pioneer Rubber Mills, San Francisco, California, is being operated at full capacity 24 hours daily to meet a rush of orders in every department. The concern also operates the largest reclaiming plant on the Pacific Coast.

With R. H. Shull in charge, the Mellinger Tire & Rubber Co., Kansas City, Missouri, has opened a coast branch at 18th and Peralta streets, Oakland, California, from which rubber products will be distributed to dealers in California, Oregon, Washington, Nevada, Arizona, Utah, and Idaho.

A cushion tire which is having a good sale on the Pacific Coast is manufactured by the Nu-Air Tire & Rubber Co., Norwalk, California. It is a unified tube-casing, non-inflatable, with a heavy tread, and depends for its resilience on numerous air cells in the body of the tire.

The stock-selling permit of the Bra-den Tire & Rubber Co., Norwalk, California, has been revoked by the state commissioner of corporations. The company was formed four years ago with an authorized capital stock of $1,000,000, and had latterly been making tires under the Wayne weftless cord fabric patents. It is no longer making tires and now confines itself to the making of tread and side wall stock and other material for vulcanizers.

The Columbia Tire Corporation, Portland, Oregon, Robert A. Wurzburg, president, has added to its sales staff W. H. Bell, formerly Pacific Coast manager of the Kelly-Springfield Tire Co. The company, which has issued $1,085,000 in common and $165,000 in preferred stock, is one of the most active and prosperous tire

making concerns on the Pacific Coast. Through a contract with the Ford Motor Co., Detroit, Michigan, the tire output has been increased 200 daily.

New Executives of California Goodyear

John W. Mapel, who had been assistant to the late G. M. Stadelman, president of the Goodyear Tire & Rubber Co., Akron, Ohio was recently elected president of the Goodyear Tire & Rubber Co. of California, succeeding E. G. Wilmer. F. K. Espenhain, first vice president of the Akron company, and J. S. Williams, credit manager of the California company, are new members of the board of directors. The others are: J. W. Mapel, recently treasurer of the California company and now succeeded in that position by Mr. Williams; A. F. Osterloh, vice president and general manager of the California company; Paul W. Litchfield, president of the Akron company; Secretary Walter I. Lyon; General Superintendent H. E. Blythe; and John Earle Jardine. The directors appointed Mr. Williams as treasurer to succeed Mr. Mapel, and reappointed General Manager Osterloh, Secretary Lyon, and General Superintendent Blythe. E. G. Wilmer, chairman of both the Akron and California companies, has resigned.

The Rubber Trade in Canada

Bookings of garden hose were much heavier than last season, and orders are being shipped to merchants in all parts of the Dominion. Dealers reduced stocks of garden hose to a minimum last season and are now restocking in anticipation of heavier sales this summer. Prices are as yet unchanged, the ½-inch three-ply listing at $11, and the molded ½-inch at $13.50 for 100 feet. The better demand for garden hose this year, despite the wet season last year, is said to be due to the absence of American competition, and Canadian manufacturers are getting this additional business. A reduction in the form of a quantity price on molded mats for automobiles is announced in Montreal. The quantity price applies on ¼ gross and over. On less than ¼ gross the regular price applies. The lower crude rubber market has been reflected in a slight reduction in rubber packing, amounting to approximately five cents per pound.

The demand for bicycle casings and tubes is good this spring, and wholesalers state that the call for automobile accessories is much more active than a year ago owing to the increased number of motor cars registered this year. Their most drastic alteration in price of auto accessories is a reduction of 25 per cent on cord patches.

There is nothing new to be said about rubber footwear. Salesmen are still out, but they have not done a very good business. The trouble is that retailers, in previous seasons, have been allowed a discount by jobbers after the date when discounts were supposed to cease. This attitude toward rubber buying will probably not change until the rubber market advances and retailers have to act promptly or lose money. It is interesting to note that rubber boots in the United States today are higher in price than in the Dominion of Canada.

The Montreal units of the Consolidated Rubber Co., Ltd., were entertained by the staff of the Central Y. M. C. A. recently. About 300 guests spent an entertaining evening. Among the executive staff present were George W. Charles, A. Whitehouse, W. M. Carment, George Bergeron and H. R. Dixon.

J. W. Green, credit manager Eastern Division Dominion Rubber System Quebec, Ltd., Montreal, has been nominated on the Board of Governors of the Canadian Credit Men's Trust Association, Ltd., Montreal.

Provincial Rubber Sales Co., Montreal, Joseph Leon Trudeau, has dissolved and re-registered under the same title as follows: Joseph Leon Trudeau and Charles Emile Barbeau. This company acts as distributers for Pennsylvania Rubber Co., Jeanette, Pennsylvania.

Canadians had 80,000 more cars last year than the year before, or an increase of 12.5 per cent. The total number registered was 719,206 against 639,202 the year before. This includes trucks as well as passenger cars. Passenger cars totaled 644,439 and commercial cars, 74,767.

Dominion Rubber System, Ltd., is doing some heavy newspaper advertising in Canadian dailies featuring Dominion Royal Cord motor-coach tires which are manufactured in the following sizes: 32 by 6, 36 by 6, 34 by 7 and 38 by 7.

The Dunlop Tire & Rubber Goods Co., Ltd., Toronto, recently advertised the fact that the Dunlop tennis ball was used in the Lenglen-Wills tennis match.

P. Lawson who formerly represented Ames Holden McCready Rubber Co., Ltd., in the city of Toronto, has been succeeded by J. Ross.

Letters patent have been issued to the Goodyear Cotton Co. of Canada, Ltd., New Toronto, to manufacture, prepare, make, buy, sell and deal in all kinds of goods, wares, merchandise and articles of trade or commerce.

E. E. Code, manager Kaufman Rubber Co., Ltd., Ottawa, was a recent visitor at the company's head office in Kitchener, Ontario.

The Lincoln Rubber Products Ltd., Grimsby, Ontario, has bought the plant formerly occupied by the Premier Tire and Rubber Co., Ltd., at Beamsville, Ontario, and will manufacture automobile inner tubes. The plant capacity is about 1,000 tubes a day, but production will start at 300 tubes, gradually increasing until the maximum is reached. The company will manufacture repair boots, blow out shoes, vulcanizing patches and reliners at the Grimsby plant. A. V. Lewis is president of the company.

The Live Wire Co., Guelph, Ontario, manufacturer of insulated wire, has purchased the factory of the old Guelph Carriage Co., which will be remodeled, new machinery installed, and the number of employes increased by about 50 per cent.

A branch managers' mechanical rubber goods and heel conference and inspection trip was held at the Goodyear Tire & Rubber Co., Ltd., of Canada, Bowmanville, Ontario, plant recently when some twenty-five or more of the company's branch managers from all over the Dominion as well as some of the head office men were in attendance.

Under the Quebec Companies' Act, letters patent have been issued to the Eastern Rubber System, Farnham, Quebec, to carry on the business of buyers, sellers, importers, exporters of and dealers in, wholesale and retail, all kinds of rubber goods and particularly rubber footwear, rubbers, boots, overshoes and any other goods belonging to the said business or connected therewith.

The Paramount International Rubber Co., Farnham, Quebec, has closed a contract for supplying some of its production to the Canadian subsidiary of the American Wringer Co., which is located at Farnham, and will manufacture rubber rolls for the paper industry, and later, small wringers for domestic use. The Paramount plant is operating 24 hours a day and has orders sufficient for three months operation. Additional machinery is being installed to take care of the increased demand. The position of the Paramount has been improved through wider diversification of its sales into three main portions; output of rubber toys and rubber specialties; sales to the American Wringer Co., and sales to the Eastern Rubber Co.

The fourth annual dinner of the Goodyear tire dealers of Greater Vancouver and the Lower Mainland was held recently in the Grosvenor Hotel, Vancouver, British Columbia. Short addresses were given by J. E. Stephenson, local manager of the Goodyear Tire & Rubber Co. of Canada, Ltd., William M. Rand, A. Higgins, Len Faris, Thomas Mills, Thomas L. Lillie, and W. F. Ing, secretary of the British Columbia branch of the Retail Merchants' Association.

The Obituary Record

Former Assistant Superintendent of G & J Tire Co.

THE friends and business associates of Phineas C. Hudson learned with deep regret of his death from pneumonia on March 17. Mr. Hudson was born at Highland Mills, New York, on December 16, 1875, and was educated in the schools of Paterson, New Jersey.

Associated with the rubber industry throughout his entire business career, he gained much of his practical experience through being connected for sixteen years with various subsidiaries of the United States Rubber Co., these connections including a stay of five years with the Peerless Rubber Co., then a position of more importance at the Hartford Rubber Works, while finally he was appointed plant engineer and assistant superintendent of the G & J Tire Co., which offices he held for seven years.

P. C. Hudson

Other associations were with the Federal Rubber Co., the Latex Tire Co., and the Archer Cord Tire Co. During the last few years he had also been conducting a tire sales business at Morgantown, West Virginia. He is survived by his widow, one daughter and a sister.

Former Vice-President of Rubber Regenerating Co.

After an illness of several months Garret Brodhead, Jr., former vice-president and general sales manager of the Rubber Regenerating Co., Naugatuck, Connecticut, died April 13 at Saranac Lake, New York. Born at Perth Amboy, New Jersey, January 3, 1888, he was educated in the schools of that town, later being graduated at Pratt Institute, Brooklyn, New York. He first became connected with the rubber industry through his work with the Rubber Regenerating Co., Mishawaka, Indiana, while about ten years ago he built and organized the reclaiming plant of the Central Rubber Co., Defiance, Ohio. For a number of years following he served as assistant general manager of the Beacon Falls Rubber Shoe Co., Beacon Falls, Connecticut, finally joining the forces of the Rubber Regenerating Co., Naugatuck, Connecticut, and holding there the positions of vice-president and general sales manager until forced to relinquish them because of ill health.

Garret Brodhead, Jr.

Chairman of Roessler & Hasslacher Board

On March 24, Franz Roessler, chairman of the board of the Roessler & Hasslacher Chemical Co., 709 Sixth avenue, New York, N. Y., died at his home in Perth Amboy, New Jersey. Born December 6, 1856, at Frankfort-on-Main, Germany, Mr. Roessler received his education in two of the German universities, coming in 1882 to the United States, where he at once began business as a manufacturing chemist. He is survived by his widow and five children.

Vice-President of Williams-Bowman Rubber Co.

Following a brief illness, James Callahan Bowman, vice-president of The Williams-Bowman Rubber Co., Cicero, Illinois, died on March 20 of pneumonia. He was forty-nine years of age.

Born in Louisville, Kentucky, and educated in the schools of that city, he went to Chicago thirty years ago, becoming connected with Morgan & Wright, of Chicago, and rising while in their employ to the position of assistant sales manager of the mechanical goods department. When the Morgan & Wright organization became consolidated with the United States Rubber Co., Mr. Bowman joined W. J. Williams in the establishment, in 1903, of an organization as jobbers of rubber goods, the two men five years later forming The Williams-Bowman Rubber Co. for the manufacture of mechanical rubber goods. For the past eleven years the company has been located at Cicero, one of the suburbs of Chicago, Illinois.

James C. Bowman

Mr. Bowman was a 32nd degree Mason, a Shriner, and a life member of the Hamilton Club of Chicago. As a resident of La Grange, Illinois, he became also a member of the La Grange Country Club, and the La Grange Suburban Club. For the past two years he had been serving as Chief of Forestry for the village of La Grange. He is survived by his mother, his widow, one son, two brothers and a sister. Ruth M. Bowman succeeds him as vice-president of the Williams-Bowman organization.

Chief Clerk of United & Globe

Joseph D. Connelly, formerly chief clerk to John S. Broughton, United & Globe Rubber Co., Trenton, New Jersey, died recently of pneumonia at his home at Trenton. Mr. Connelly had just returned from a trip to Florida when he was fatally stricken.

Founder of Hungarian Rubber Industry

Announcement has been recently made of the death of Bela Rechnitz, vice-chairman and general director of the Hungarian Rubber Goods Factory, Ltd., Budapest, Hungary. Holding the position of founder of the rubber industry in his native country, Mr. Rechnitz had built up his particular organization, with which he has been connected for more than thirty years, until it ranked as one of the leading producers of rubber goods in Central Europe. He was interested in enterprises in other countries, being a member of the board of the "Semperit" Austro-American Rubber Factories of Vienna, and of the Wiener Bank-Verein, also in Vienna. He also acted as joint-president of the Hungarian Association of Chemical Manufacturers, and was well-known among the promoters of European rubber industries who regret his passing as a distinct loss.

AMERICAN IMPORTS OF CHICLE DURING 1925 REACHED A VALUE of $5,986,000 as against $3,971,000 in 1924, a gain of 50.8 per cent.

The Rubber Trade in Europe

Great Britain

NOTWITHSTANDING the difficulties involved in the coal dispute and a threatened strike by the engineering industries of England, trade along many lines is showing improvement, and automotive production in particular. During 1925 the output of British automobiles increased, according to reliable statistics, about 100 per cent over that of the year 1923, and some 32 per cent over the 1924 mark. Compilations in regard to exports of rubber goods also continue favorable, particularly in connection with the tire output. The operations of rubber companies have been better than had been expected, and with the demand for crude rubber continuing to increase, the prospects for the future of the industry are apparently bright.

Institution of Rubber Industry Holds Annual Dinner

There was a large attendance of members and guests at the fourth annual dinner of the Institution of the Rubber Industry which was held March 8 at the Hotel Victoria, Northumberland avenue, London. Sir Stanley Bois, president of the organization, was toastmaster, while the chief address of the evening was made by Sir William Joynson-Hicks, Home Secretary.

In proposing the toast "The Institution of the Rubber Industry" Sir William said that perhaps no other nation in the world would have done what England had done in the development of the rubber planting industry, an industry of very recent growth, little more than twenty or twenty-five years. It represented one of those curious applications of science which had made such wonderful strides throughout the world, but it was much more than science, more than horticulture—it was the grim determination of the Englishman that had brought about this wonderful development and had laid firm and sound the foundations of the rubber industry. There was no nation in the world, Sir William believed, that could deal with the native races as England could; there was no nation which understood firmness and fairness combined as England did.

Referring to restriction measures, Sir William said that the country as a whole had benefited from those measures, and that although Lord Stevenson had been attacked in many places, every one of those attacks was absolutely unjustifiable. England had made the rubber industry, and it had the right to do its best for its own interests in that industry. Other nations could have developed the great rubber plantations, but they had failed to do so. In closing, Sir William said that he was satisfied that the Institution was accomplishing much that was good; it was the means for bringing the various sections of the industry together to aid research. Because the Institution was helping those in the industry to come together, he hoped that it would continue to flourish.

In responding, Sir Stanley Bois agreed as to the necessity for scientific research, which at present was engaging the attention of able men in the rubber industry. In the course of his remarks he said that in 1910 the world was dependent mainly upon the 40,000 or 50,000 tons of wild rubber from the Amazon. We were now, he said, contemplating a world production of some 600,000 tons, and must have the necessary demand to consume it. That would come mainly through the enormous expansion of the motor trade, and it was to be hoped that that expansion would continue.

Sir Frank Swettenham, vice-president of the Institution, then proposed the toast "Kindred Associations," mentioning the various interests in Great Britain which were connected with the rubber industry, and the Society of Motor Manufacturers and Traders in particular. Sir William Letts, chairman of the last-mentioned organization, referred to the rubber industry as an enormous one, saying also that nothing could stop its growth any more than anything could stop the tremendous increase that there was bound to be year by year in the amount of motor vehicles produced. He believed that the motor manufacturers should be allied with the rubber industry, and that the troubles of one were the troubles of both. Other toasts proposed were "The Guests" by Colonel J. Sealy Clarke, and "The President" by D. F. L. Zorn.

Ideal Home Exhibition

One of the most popular attractions at the Ideal Home Exhibition, which was held March 2-27 at Olympia, London, was the "Rubber House" planned by the Rubber Growers' Association. This exhibit occupied an important place in the main hall of the exhibition, the entrance being flanked with small trees, representing a rubber plantation, with tapping in progress. In the interior of the rubber house each room, including the dining-room, kitchen, nursery, and bathroom, as well as hallway, was fitted out with suitable rubber articles, while the beautiful rubber floorings represented another important feature. Nineteen well-known rubber companies contributed in this unique display of rubber goods.

New Chairman of Rubber Trade Association

The many friends of Arthur Jones, director of the General Rubber Co., Ltd., 22 Fenchurch street, London, E. C., Liverpool and New York, are congratulating him on his unanimous election as chairman of the Rubber Trade Association. He was one of the first members of that association, being appointed on the original committee. A man of wide experience in all phases of the rubber industry, he is also much of a traveler, having made extended visits to the rubber plantation districts of the Far East. Interested in the rubber trade of the United States, he has been in the habit of visiting that country at least twice a year.

British Notes

The following committee has been appointed to represent the United States at the coming International Rubber Exhibition, to be held in Paris, France, from January 21 to February 6, 1927: Francis R. Henderson, president, Henderson & Helm Inc., New York, N. Y.; Ernest Hopkinson, vice-president, United States Rubber Co., New York, N. Y.; W. O'Neil, president, The General Tire & Rubber Co., Akron, Ohio; P. L. Palmerton, Chief, Rubber Division, Department of Commerce, Washington, D. C.; Charles B. Seger, president and chairman of the board of directors, United States Rubber Co., New York, N. Y.

Production is beginning at the new factory of the Reliance Rubber Co., Ltd., Formosa street and Amberley Road, Paddington, London, W. 9. The output includes various lines of rubber sundries and molded goods. Fordyce Jones is in charge.

British manufacturers of automobile tires announced during the third week of April a reduction in the price of casings averaging 10 per cent. The Avon India Rubber Co., Ltd., has also announced a special reduction in the prices of all commercial tires—solid, air cushion, and giant pneumatics. The organization points out that solid tires, being nearly 100 per cent rubber, are more affected by changes in the price of rubber than pneumatics.

Hecht, Levis & Kahn, Ltd., of London and Liverpool, was registered as a private company on March 25, with a nominal capital of £350,000. The organization will carry on the business of rubber merchants and dealers, and will import and export rubber of all grades, balata, jelutong, etc. The new company represents a continuation of the business originally established in 1846 under the name of Hecht Bros. The directors of the

present organization include: Adrien Alcan of Alcan & Co., Paris; Walter Fletcher, Redvers Prior, and Alphonse Reyersbach.

Some of the rubber producing companies are now declaring very large dividends, some of these being: Kepong (Malay) Rubber Estates, Ltd., final dividend of 25 per cent (less tax) for the year 1925, making 62½ per cent; Selangor Rubber Co., Ltd., total dividend for the year 1925 of 50 per cent, less income tax; New Crocodile River Selangor Rubber Co., Ltd., dividend for year 1925 of 30 per cent.

Germany

During the last few weeks the German rubber industry has shown a tendency to improve. To be sure the improvement is taking place very gradually, nevertheless the signs are considered hopeful and it is felt that the crisis has been passed. Unemployment, which was increasing week by week, seems to be slowly decreasing, a circumstance which cannot but have an effect on general business. In other industries, too, matters are beginning to look up again so that constantly increasing activities in rubber manufacture are expected.

The present uncertain and fluctuating market for crude rubber unfortunately helps to prolong the hand-to-mouth buying policy, as further decreases are expected.

As far as possible, prices of finished goods have been cut and large firms are busily engaged in making calculations to reduce prices of more lines. While home consumption is increasing, this alone is not enough to keep all factories going to capacity. For this a livening up of the export trade is needed which, considering the depressed conditions in most foreign countries, cannot, however, be expected in the near future.

German Notes

On March 22, Director Fritz Henke of the Continental Caoutchouc und Gutta Percha Compagnie, Hannover, will celebrate the 25th anniversary of his connection with the firm.

The Deutsche Telephonwerke und Kabelindustrie A.-G., Berlin, reports satisfactory results for 1925 despite many difficulties. Net profits were 476,223 marks and a dividend of 6 per cent is proposed.

The firm A. Knoevenagel, Hannover-Hainholz, manufacturers of machinery, also for the rubber industry, celebrated the 70th anniversary of its foundation on April 1, 1926. The concern has been in the possession of the same family from its inception.

The Czecho-Slovakian Minister of the interior has permitted the German firm, Vereinigte Berlin-Frankfurter Gummiwarenfabriken, Berlin, to settle in Heradek, Czecho-Slovakia, to manufacture rubber goods.

France

The 1925 imports of crude and manufactured rubber into France showed a substantial increase over those of 1924. Crude rubber imports were 457,283 quintals, value 1,105,446,000 francs, in 1925 against 411,630 quintals, value 366,258,000 francs in 1924. The rise in the prices of crude rubber is fully reflected in the 1925 value which is more than three times that of 1924, whereas the increase in quantity is about 25 per cent.

The manufactured goods imported included: tires and tubes, 17,991 quintals, value 41,359,000 francs in 1925, against 13,769 quintals, value 21,795,000 francs in 1924; belting, hose and packing, 9,259 quintals, value 31,309,000 francs, instead of 8,822 quintals, value 24,279,000 francs; footwear, 745 quintals, value 2,027,000 francs, against 846 quintals, value 1,354,000 francs; vulcanized thread, 5,093 quintals, value 22,850,000 francs, against 4,495 quintals, value 15,789,000 francs; rubberized fabrics, in pieces, 714 quintals, value 1,297,000 francs, as compared with 582 quintals, value 1,633,000 francs; apparel, 318 quintals, value 2,948,000 francs, instead of 269 quintals, value 2,328,000 francs.

The total value of all manufactures of foreign origin consumed during 1925 came to 110,940,000 francs against 73,628,000 francs the year before, an increase in value of 50 per cent. During 1925 Great Britain supplied goods to a value of 36,483,000 francs, an increase of 26.4 per cent over that of 1924; America's share was 32,482,000, an increase of 83 per cent over 1924; that of Belgium 19,442,000 francs, an increase of 86 per cent; of Italy, 7,737,000 francs, a decrease of 10 per cent; of Canada, 6,859,000 francs, an increase of 97.6 per cent; of Germany, 4,416,000 francs, an increase of 68 per cent.

The comparatively small increase in British imports is noteworthy. Indeed, imports from this source, while still heading the list, have remained practically stationary during the last few years. At the same time, imports from America are gaining rapidly and this country runs Great Britain a close second. Among the American imports should be noted: hot water bottles, syringes, bath sponges, rubber gloves and aprons under the head of surgical goods and druggists' sundries. Rubber thread is an important item of imports of which America supplies the major portion. American bathing caps are also making headway in the French market.

Exports of manufactured goods represented a total value of 1,067,320,000 francs in 1925 as compared with 814,862,000 francs in 1924. The bulk of the exports consisted of tires and tubes, the total amount of which was 243,254 quintals, value 809,917,000 francs, against 217,999 quintals, value 633,262,000 francs in 1924. France's chief customers for these goods were England, 51,424 quintals against 46,471 quintals; Belgium and Luxemburg, 23,775 quintals, against 25,076 quintals; Switzerland, 25,981 and 18,502 quintals respectively; Spain, 16,144 against 17,696 quintals; Morocco, 7,535 against 8,845 quintals; British Indies, 6,700 against 7,664; and Australia, 11,213 against 5,546 quintals. Footwear exports were 31,102 quintals, value 86,310,000 francs and 25,853 quintals, value 56,455,000 francs in 1925 and 1924 respectively. Belting, hose and packing came to 20,618 quintals, value 54,253,000 francs against 21,826 quintals, value 48,705,000 francs. Important also were the exports of elastic fabrics: 1,839 quintals, value 27,775,000 francs, rubberized fabrics 3,425 quintals, value 34,617,000 francs and apparel 2,851 quintals, value 39,825,000 francs.

Belgium

Belgium consumed about 2,500 long tons of rubber in 1925 and produced about $7,000,000 worth of goods. At the same time she imported rubber articles to a value of $5,819,176 and exported goods valued at $3,161,595. From these figures it is deduced that Belgium itself used goods to a value of about $9,650,000. Of this amount, 40 per cent was supplied by local manufacturers. Over 40 per cent of the imports came from France, 20.5 per cent from America, 18.4 per cent from Italy and 11.4 per cent from England.

Tire imports accounted for 75 per cent of the total value, and came to $4,350,000. France supplied 42 per cent, America 22 per cent, and Italy 23 per cent. The chief makes of tires on the Belgian market were Michelin, Dunlop and the local Englebert tires, besides American brands.

Mechanical goods were next in importance and represented a value of about $342,000, of which large quantities were supplied by America, particularly belting, hose and rubber sheet packing, in which lines America dominated. The footwear market is dominated by France which supplied boots and shoes to a value of about $55,000 out of a total value of approximately $140,000. Great Britain and France have about equal shares in the trade in rubberized piece goods which totaled some $566,000. Belgium also uses large quantities of rubber thread, the value of which in 1925 was in the neighborhood of $116,000, about two-thirds of which was supplied by England and America combined. Druggists' sundries were valued at $150,000, in round numbers, most of these goods being sent by the leading European firms. Belgian exports included 140,000 automobile tires, 350,000 pounds of balata and rubber belting, and 148,000 pounds of rubber hose. Exports of toys, balls, etc., were valued at about $90,000.

The Rubber Trade in the Far East

Malaya

Rubber Production and Consumption

FROM a circular issued by E. A. Barbour, Ltd., Singapore, we abstract the following:

Malaya. No official figure for standard production has been given, but reliable authorities place it at 285,000 tons. We are of opinion the average over the whole year will approximate this figure.

Ceylon. Standard, 68,640 tons, the probable figure, however, would seem to be 60,000 tons.

Dutch East Indies. Net production for 1925, 188,000 tons. At a conservative estimate, 18,000 were probably smuggled rubber. Considering this, as well as the lack of incentive to smuggle at present, Dutch East Indies net production for 1926 may be placed at 195,000 tons approximately.

The output of the rest of the world may be expected to increase from 65,000 in 1925 to 80,000 tons in 1926. Total production for 1926 is therefore estimated as follows: Malaya, 285,000; Ceylon, 60,000; Dutch East Indies, 195,000; Rest, 80,000; a total of 620,000 tons.

The world's consumption of crude rubber in 1925 was 535,000 tons, of which America used 395,000 tons, and rest of the world 140,000 tons.

Due to high prices America considerably increased her reclaiming plants, 140,000 tons being reclaimed during 1925 while the estimated yield for 1926 is 210,000 tons. American manufacturers state they can increase their proportion of reclaimed rubber to nearly 60 per cent in tire casings without increasing the cost per mile. High prices in 1925 are responsible for this, and restriction may yet defeat itself.

Motor sales for 1926 in America are not expected to equal the 1925 figure. This coupled with severe weather conditions in Europe and America indicates that total American consumption of crude rubber in 1926 will not exceed 380,000 tons. We seriously doubt if this figure will be reached.

Consumption for the rest of the world will increase 15 to 20 per cent, so that total world consumption for 1926 is put at: America, 380,000; rest, say 160,000; a total of 540,000 tons.

This leaves a probable surplus of 80,000 tons for 1926, a surplus which it is unlikely will be used in 1927, so that a period of low prices may be expected, probably lower than at present, in fact 1*s* per pound would not be surprising!

Of course, this forecast is not taken seriously here.

If rubber should really fall to a lower level than at present prevailing, the use of reclaim would not be advantageous and more crude rubber would be used, which would in turn react on the prices of crude rubber.

As one broker put it, there is no need for any pessimism, for not only will the use of reclaim decrease appreciably should rubber stay at a price below 2*s* for any length of time, but innumerable articles, the manufacture of which became unprofitable when prices soared and so had to be dropped, would again be used, thereby increasing the consumption of rubber and again affecting prices. On the other hand, when prices show a tendency to mount too high, they are promptly brought back to a more reasonable level by the decrease in consumption resulting from more extensive use of reclaim, coupled with the abandonment of the above-mentioned new goods. The slump was possible because manufacturers had yet to learn of the many new uses to which rubber could be put.

The *Straits Times*, while it fully agrees that there will be an increase of stocks in 1926, estimates the increase in consumption over that of 1925 at only 5,000 tons. Figures are based on 100 per cent production for both Malaya and Ceylon in addition to a 10 per cent increase for the Dutch colonies but no increase from other sources. While the Barbour company looks for under-consumption in 1926, the *Straits Times* looks for over-production, and does not consider reclaim as a factor at all.

It may be said that few persons here think of the possibility of lessened American consumption of crude rubber during the current year; but more than one is inclined to agree with the Barbour people that shipments from Ceylon and the Dutch East Indies will be smaller than is generally expected.

With regard to the Dutch estates, these have been producing to capacity for some time and no great increase is to be expected from this source especially if prices should fall below 2*s* 6*d*, or 2*s*.

As for the native output, in many quarters there is strong agreement that a large percentage of so-called native rubber is simply Malayan rubber reentering the colony after having been smuggled out of it. Recent statistics seem to bear out these suspicions. Thus imports of so-called native rubber for each of the last four months have been as follows: November, 1925, 14,904 tons; December, 1925, 13,964 tons; January, 1926, 10,237 tons; February, 1926, 8,306 tons. At the same time total exports from British Malaya were: November, 1925, 31,648 tons; December, 1925, 29,863 tons; January, 1926, 30,452 tons; February, 1926, 30,440 tons.

As for Ceylon, it is suggested that 1926 outputs will barely reach 50,000 tons, and may even be much less if prices are not sufficiently tempting.

Restriction Must Stay

At a meeting of the Johore Planters' Association representing 137,957 acres planted with rubber, it was unanimously decided that it was essential to the continued prosperity of the country that restriction or similar control of rubber output be permanently maintained.

Life of the Rubber Tree

The *Straits Times* expressed the opinion that considerable rubber in Malaya is now past its prime, which is put at from 12 to 15 years, and that bark renewal will not be so good.

F. G. Spring, in the *Malayan Agricultural Journal*, takes issue with this statement. The opinion of the Department of Agriculture, he says, is contrary to the above, especially regarding estates where rubber is grown under good environmental conditions.

Observations on the longevity of *Hevea Brasiliensis* are being recorded and yields taken on trees around 30 years of age. The results, up to date, show that where yields per acre decline, the true cause is not the age of the tree but the environmental conditions brought about by such causes as soil erosion, bad tapping, bad soil moisture conditions, impoverished soils and disease.

The author then quotes a number of authorities on the age of rubber trees in Brazil, among others a letter to the editor, appearing in *The India Rubber World*, January 1, 1917, is mentioned, in which particulars are given of a giant Hevea in South America, having a circumference of 127 feet at its base and yielding an average of 22 pounds of rubber per day for 120 days. This tree was considered to be a few hundred years old.

As for plantation Hevea, the industry is not old enough to allow accurate deductions regarding the life of the Hevea or the period over which the Hevea may be exploited with profit.

Ceylon

The amount of rubber exported from Ceylon during February, 1926, was 5,120 tons, Ceylon-produced, while the exportable maximum was 5,720 tons. Ceylon exports, therefore, fell short

by 600 tons of the exportable quota. It is noteworthy that in spite of the high prices ruling in the last month of 1925 and the beginning of 1926, exports were less than the maximum exportable amount during every month after October, 1925. Exports of latex during February, 1926, came to 1,352 gallons.

Netherlands East Indies

Cooperative Selling

Once more there is much talk concerning cooperative selling in Dutch rubber circles and many persons, with the example of the United Indian Sugar Producers' Association before them, would like to see a similar organization for rubber.

J. N. Burger, the well-known rubber man, points out the differences between the sugar and rubber industries. Java sugar is chiefly consumed in the East, while rubber goes throughout the world; sugar is prepared according to scientific formula and the final products of any number of factories are similar, whereas not only are there various grades of rubber, but the standard quality of one estate differs from that of another, and the lower grades vary to such an extent, as far as quality, preparation, purity, are concerned, that prices are usually fixed according to samples.

Cooperative selling would obstruct free trading especially in connection with forward contracts. Then he asks, in case prices fall to a low level and the organization decides to stop selling until prices improve, how would an estate which had placed its product in the hands of the organization be supplied with working capital?

A further objection is that a cooperative selling agency would have to bear an international character; this would cause new difficulties because the native output could not be taken up in the organization, so that the latter would become the pace-maker for the native product. Again, English interests being the most important, the British would have most to say in the management of such an agency. This would automatically result in the Dutch estates having to take up the Stevenson restriction scheme, the consequence of which would be that the strife between consumer and producer would become still more embittered than it already is.

Mr. Burger concludes that it is absolutely undesirable to attempt to realize the idea of central selling.

Djambi Rubber

A local publication publishes a review of rubber cultivation in Djambi by the natives. The promoter of native rubber cultivation was Mr. Helffrich who was resident of Djambi in 1907. About that time he had about 30,000 seedlings planted in the Government Botanical Gardens. The young plants were distributed gratis amongst the Japanese and some Malays. Soon after this, the Chinese began to give young rubber plants to their customers free of charge by way of advertisement. Thus a demand for rubber plants and seeds was created which soon exceeded the supply and a regular trade began in rubber planting material imported from Singapore.

By 1911, the first exports of rubber, amounting to 490 kilos, took place. The following figures illustrate the rapid growth of this industry:

Year	Exports in Tons	Value in Guilders
1911	0.5	1,500
1914	125	331,000
1916	1,188	1,982,000
1917	1,825	2,936,000
1918	2,576	4,276,000
1919	6,154	14,150,000
1921	2,915	2,711,000
1922	9,678	8,220,000
1923	12,389	13,836,000
1924	22,851	15,996,000

Millions of new trees were planted during the years 1918 and 1919, and these it is assumed are responsible for the rapid increase in exports in the last few years.

New Coagulation Process

It is reported that R. A. van Prehn, director of the Cult. Mijen Plaoer, Gollie and Gedat, at the same time manager of the last two estates, has invented a coagulation method in which absolutely no chemicals are used, while any estate can adopt the new method without much change in the factory.

Besides the fact that no formic or acetic acid is necessary, the method greatly improves the quality of the product.

Various tests in Java and Europe proved that the viscosity and elasticity of rubber prepared by this method are increased 30 per cent and that the durability of the product is enhanced. Two tests in particular showed the superiority of this rubber very plainly: (1) Five balls, each coagulated in a different way, were dropped to the ground from a height of 1 metre (39.37 inches). The ball prepared by the new method rebounded almost 31 c.m. (about 12 inches) higher than the other four; (2) Five thin strips similarly prepared, were stretched until they broke. The strip made by the new method could be stretched almost twice as long as the other four before it broke.

Netherlands East Indies Notes

The Anglo-Dutch Plantations of Java have installed a latex spraying factory, called the Sprayed Rubber Installation, near the station Pasir Boengoer on the Tjikampek-Cheribon railway, in Central Java. It is reported that operations have commenced.

A company has been formed at Bandoeng to exploit a rubber plantation between Maos and Bandjar. The estate covers an area of 2000 bouws (bouw—1.754 acres), and 500 bouws are to be planted during the current year. Besides the rubber, Robusta coffee will be planted.

The estates Taudikat (Kajoe Tanam), Soengei Aoer (L. Basoeng) and Doekoe (near Padang) have been acquired by the Java Rubber Mij.

During 1925, 103,000 kilos of gutta percha were harvested from the government plantations, against 108,513 kilos in 1924. The decrease is due to the dry weather prevailing during the year which limited leaf formation.

India

According to the Department of Commercial Intelligence and Statistics, India, the number of rubber plantations in 1924 was 998 covering an area of 193,911 acres, as against 972 estates with an area of 198,018 acres in the preceding year. During the year under review 3,254 acres of new land were planted while 1,798 acres of old land were abandoned, so that the net increase over the total planted area was 1,456 acres. The total planted area was therefore 129,458 acres against 128,002 acres the year before, while the tappable area was 81,918 acres. Of the cultivated area, 50 per cent was in Burma, 32 per cent in Travancore, 8 per cent in Madras, 7 per cent in Cochin, 2 per cent in Coarg and 1 per cent in Mysore.

The total production of crude rubber for 1924 was 15,601,296 pounds (including 60,391 pounds of Ceara rubber and 163,646 pounds of Ficus), as compared with 14,462,504 pounds (including 39,938 pounds of Ceara rubber and 19,000 pounds of Ficus) during the year before. The yield per acre of tapped area was 208 (169) pounds in Madras, 202 (193) pounds in Burma, 193 (222) pounds in Cochin, 178 (202 pounds) in Travancore, 140 (156 pounds) in Coarg and 101 (100) pounds in Mysore. The figures for 1923 are shown in parentheses. Burma and Madras were chiefly responsible for the increase in total production during 1924.

Exports of rubber by sea during 1924-25 amounted to 18,000,000 pounds, which is an increase of 17 per cent over the previous year's showing. About 48 per cent went to England, 22 per cent to Ceylon, 19 per cent to Straits Settlements and 10 per cent to America. Nearly 52 per cent of the trade was from Madras and 48 per cent from Burma.

Rubber Patents, Trade Marks and Designs

The United States

March 9, 1926*

1,575,631 Garter. Ethel Larimore, Barberton, and Violet Frame, Akron, both in Ohio.

1,575,666 Acid proof container. Raymond M. Warner, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,575,681 Rubber lined acid drum. Richard T. Griffiths, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,575,682 Inflatable figure toy. Richard T. Griffiths, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,575,749 Cushion tire. Joseph Findling, assignor of one-half to Luther L. Campbell, both of New York, N. Y.

1,575,921 Flexible coupling disk. Elmer G. Kimmich, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

1,575,927 Flexible coupling member. Herman E. Morse, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

1,575,955 Cord tire. Walter R. B. Whittier, Chattahoochee, Georgia.

1,575,956 Auxiliary rim and tire. Lela Earl Williams, Benton, Illinois.

1,575,966 Pneumatic tire. Harold A. Brittain, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

1,576,044 Means for adapting wide base cushion tires to narrow base rims. Wallace R. Gillam, Tallmadge, assignor to Lambert Tire & Rubber Co., Barberton, both in Ohio.

1,576,206 Cushion tire. Frank H. Meyer, Warren, Ohio.

1,576,282 Heel. Hugh T. Hughes, assignor of one half to Albert Crost, both of Cleveland, Ohio.

1,576,393 Brassière. Gracia V. Wood, Washington, District of Columbia.

March 16, 1926*

1,576,555 Pneumatic tire valve mechanism. Leon N. Southmayd, Springfield, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,576,924 Resiliently tired wheel. Edward T. Malloy, Hamilton, Ohio.

1,576,971 Glove. William H. Heaton, Oakland, California.

1,576,980 Self filler mechanism for fountain pens. Israel Krutt, assignor to William A. Rappeport, both in New York, N. Y.

1,577,032 Rubberized fabric pulley. Frank J. Karg and Leo Herman, both of Tallmadge, assignors to The Herman Machine & Tool Co., Akron, both in Ohio.

1,577,050 Pneumatic tire patch. Daniel Michel Weigel, London, England, assignor by mesne assignments to American Wire Cord Tire Co., Wilmington, Delaware.

1,577,085 Body garment. Loretta F. Tighe, New York, N. Y.

1,577,116 Shirt anticreeper. Darsie E. Edwards, assignor of one third to Carroll O. Edwards, both of Clinton, Missouri.

1,577,126 Corset. Augusta S. Johnson, Brooklyn, New York.

1,577,143 Cushion tire. Thomas C. Mussen, Toronto, Ontario, Canada.

1,577,183 Shape preserving device for hats. Martin W. Dowiarz, Chicago, Illinois.

1,577,203 Arch support. Albert L. Cramer, Denver, Colorado.

1,577,214 Window mounting. William C. Fischer, assignor to The Baker-Raulang Co., both of Cleveland, Ohio.

1,577,269 Corset. Ralph S. Thompson, New York, N. Y.

1,577,409 Garment protector. LeRoy H. Rand, assignor to Brooklyn Shield & Rubber Co., both of Brooklyn, New York.

March 23, 1926*

1,577,520 Paving block. Jack Sheridan Cowper, South Kensington, London, England.

1,577,526 Automobile mat. Henry Hellweg, Milwaukee, Wisconsin, assignor by direct and mesne assignments of fifty-one per cent to F. O. Richey, Cleveland, and forty-nine per cent to Edward E. Richardson, Maumee, both in Ohio.

1,577,607 Fire truck apparatus. Jacob B. Blaw, Atlantic City, New Jersey.

1,577,610 Paving or flooring. Ernest Clark, New York, N. Y., and Daniel T. Gilmartin, Jr., East Orange, New Jersey.

1,577,666 Abdominal bandage. Harvey W. Walter, Philadelphia, Pennsylvania.

1,577,752 Elastic garment. Joseph T. Price, assignor to Horn Surgical Co., both of Philadelphia, Pennsylvania.

1,577,791 Waterproof footwear. Louis Dreschler, St. Louis, Missouri.

1,577,796 Rubber saw clamp guard. Fred K. Finneman, Portland, Oregon.

1,577,861 Soap holder. Beulah L. Henry, New York, N. Y., assignee of one-fourth to Edward B. Twombly, Summit, New Jersey.

1,577,944 Blackboard washer. Albert P. Bennington, Philadelphia, Pennsylvania.

1,578,074 Rubber toothbrush. Jermain Chandler, Toledo, Ohio.

*Under Rule No. 167 of the United States Patent Office, the issue closes weekly on Thursday, and the patents of that issue bear date as of the fourth Tuesday thereafter.

1,578,090 Tire. Wallace Henry Paull, Birmingham, England, assignor to Dunlop Tire & Rubber Corporation of America, Buffalo, New York.

1,578,147 Cushion connection for wheels. Fred L. Lipcot, assignor to The Rubber Shock Insulator Co., Inc., both of New York, N. Y.

March 30, 1926*

1,578,391 Sound amplifier. George W. Bulley, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,578,641 Side enclosure for automobiles. Norbert W. Bywater, Louisville, Kentucky.

1,578,715 Arch supporting member. William H. Cooke, Dorchester, Massachusetts.

1,578,716 Corset. Katherine E. Cunningham, assignor to The H. W. Gossard Co., both of Chicago, Illinois.

1,578,803 Tractive cover for tires. Frederick H. Comey, Akron, assignor to The Falls Rubber Co., Cuyahoga Falls, both in Ohio.

1,579,059 Tire. Enoch W. Austin, Okmulgee, Oklahoma.

The Dominion of Canada

March 9, 1926

258,710 Golf ball. Harvey F. Mitzel, Jersey City, New Jersey, U. S. A.

March 16, 1926

258,902 Tire. Anthony F. Dembeck, New York, N. Y., U. S. A.

258,909 Swimming cushion. Gotthard Ernst, Wolmirstedt near Magdeburg, Germany.

258,976 Metallic packing. Elmer E. Switzer, Beaumont, Texas, U. S. A.

258,979 Window cleaning device. Peter Thompson, Hamilton, Ontario.

259,017 Pneumatic tire tread. The Dunlop Tire & Rubber Goods Co., Ltd., Toronto, Ontario, assignee of Wallace Henry Paull, Birmingham, County of Warwick, England.

259,033 Cushion connection for vehicles. The Rubber Shock Insulator Co., Inc., assignee of Fred L. Lipcot, both of New York, N. Y., U. S. A.

March 23, 1926

259,131 Self locking nut. Ture Gustaf Rennerfelt, Stockholm, Sweden.

259,138 Arch support. Lawrence Emery Scrannage, Philadelphia, Pennsylvania, U. S. A.

259,180 Inflated ball. The Dunlop Rubber Co., Ltd., Regent's Park, County of London, assignee of Albert Ernest Penfold, Birmingham, County of Warwick, both in England.

March 30, 1926

259,261 Brush with rubber convex pad. Robert Paley Kitcat and Charles Perkins Robertson, both of Upper Clapton, County of London, England.

259,305 Golf ball cleaner. James E. Hamilton, Two Rivers, Wisconsin, U. S. A.

259,336 Telephone receiver head band. John MacDougall, Prestwick, Ayrshire, Scotland.

259,374 Tire inflator. Iver J. Svarstad, Aberdeen, South Dakota, U. S. A.

259,433 Packing gasket. A. Schrader's Son, Inc., assignee of John Wahl, both of New York, N. Y., U. S. A.

The United Kingdom

March 3, 1926

245,511 Rubber belt for conveying fibrous materials. S. Allingham, 63, Queen Victoria street, London, M. Soenens & Boby, Ltd., St. Andrews Ironworks, Bury St. Edmunds, Suffolk.

245,514 Air cushions. D. Moseley & Sons, Ltd., and R. Moseley, Chapel Field Works, Ardwick, Manchester.

245,533 Electric conductor with rubber core. F. F. Sharp, 6, Baring avenue, Thornbury, Bradford, and R. R. Stell, 7, Kirklands avenue, Baildon, Shipley, both in Yorkshire.

245,535 Hone molding device with rubber table. J. A. D. Watt, 142, Tulse Hill, London.

245,537 Vulcanite, ebonite, etc., inductances. Lord Egerton of Tatton, Tatton Park, Knutsford, Cheshire.

245,539 Inflatable net float. R. Bridge, Redscar, Hemingway East, Blackpool.

245,566 Brush with flexible rubber pad. R. P. Kitcat and C. P. Robertson, Mount Pleasant Works, Muston Road, Upper Clapton, London.

245,592 Hand knitting appliances. C. Terry, Southcrest, Redditch, Worcestershire.

245,597 Garters. E. A. Morgan, Carlton, Ford Road, Upton, Birkenhead.

Chemical patents will be found on page 85. Machinery and Process Patents on pages 90-91.

245,622 Appliances for putting on shoes. A. J. Strong, Crown Chambers, Crown Alley, Dublin.

245,634 Ebonite formers for electric inductances. Fuller's United Electric Works, Ltd., Woodlands Works, Grove Road, Chadwell Heath, and A. P. Welch, 33, Eastwood Road, Goodmayes, both in Essex.

245,650 Closure members. Glenfield & Kennedy, Ltd., and E. B. Ball, Kilmarnock, Ayrshire.

245,659 Radiator buffers. O. Y. Imray, 30, Southampton Buildings, London (International Motor Co., 25 Broadway, New York, N. Y., U. S. A.)

245,675 Inflatable swimming cushion. G. Ernst, 21 Bahnhofstrasse, Wolmir-tedt, near Madgeburg, Germany.

March 10, 1926

245,821 Shaft packing. G. W. Beldam, Boston Lodge, Ealing, London.

245,867 Rubber lined acid proof container. A. Kelly, 57, Chancery Lane, London.

245,881 Air cushions. D. Moseley & Sons, Ltd., and G. E. Bermingham, Chapel Field Works, Ardwick, Manchester.

245,897 Elastic stockings. J. H. Haywood, Ltd., Castle Gate, and W. S. Keywood, 13, Willoughby avenue, Lenton, both in Nottingham.

245,909 Draught excluders. A. Riley, Aldbourne Works, Aldbourne Road, Coventry.

245,927 Straps. W. Wright, 38, Bank street, Ashford, Kent.

245,954 Spring buffers. O. Y. Imray, 30, Southampton Buildings, London (International Motor Co., 25 Broadway, New York, N. Y., U. S. A.).

245,968 Hot water bottle stopper. G. H. C. Lumsden, Mercia House, Lansdowne Road, Hove, Sussex.

245,980 Confectionary apparatus. H. McAllister, 1021½ Main street, Wishaw, Lanarkshire.

245,988 Hot water bottle stopper. A. Dunkley, Stamford Cottage, Dela Warr Road, Bexhill-on-Sea, Sussex.

246,032 Breast improvers. E. I. Champness, 26, Sternhold avenue, Streatham Hill, London.

246,059 Heel. Wood-Milne, Ltd., and J. G. Brockbank, 2, Central Buildings, Westminster.

246,077 Screen wall building protector with rubber layer. W. P. Digby, 91, Victoria street, Westminster.

246,085 Top boots. T. G. Dobson and Dobsons, Ltd., Hutton Road, Fish Docks, Grimsby.

March 17, 1926

246,096 Telephone diaphragm. H. J. Round, 9, Woodberry Crescent, Muswell Hill, London.

246,117 Arch supports. Turf Tread Corporation, 73 Tremont street, Boston, assignee of D. P. Cummings, Newton, both in Massachusetts, U. S. A.

246,159* Cow milkers. F. Remy, Rue de la Station, Fosses-lez-Namur, Belgium.

246,233 Thermionic valve resistances. H. Stevens, Walsall street, and A. J. Stevens & Co. (1914), Ltd., Graiseley House, Penn Road, both in Wolverhampton.

246,243 Printing machine blankets. E. C. R. Marks, 57 Lincoln's Inn Fields, London (E. Gerasch Ges., 6 Goeschenstrasse, Leipzig, Germany).

246,277 Vacuum closures for bottles. G. H. Bennett, Pendeen, Sedbergh, Yorkshire.

246,295 Apparatus for producing double impressions using rubber cloth frame. E. C. R. Marks, 57, Lincoln's Inn Fields, London (E. Gerasch Ges., 23, Taubchenweg, Leipzig, Germany).

246,320 Hand stamps. J. K. Rafford, 35, Cloth Fair, London.

246,329 Catamenial appliance. B. J. Owen, Angle House, Woodstock Road, Oxford.

246,333 Shock absorbers and dust excluders. F. J. Gibbs, Inglecote, Darby Road, Grassendale, and C. G. Middleton, 9, Salisbury Road, Wavertree, both in Liverpool.

246,340 Mud guards rotating with wheels. D. Stevenson, and G. D. Mackay, 33, Fettes Row, Edinburgh.

246,418 Disk wheels. H. N. Atwood, Samarkand Farm, East Hill Road, Monson, Massachusetts, U. S. A.

246,419 Disk wheels. H. N. Atwood, Samarkand Farm, East Hill Road, Monson, Massachusetts, U. S. A.

246,420 Disk wheels. H. N. Atwood, Samarkand Farm, East Hill Road, Monson, Massachusetts, U. S. A.

246,421 Hot water bottle stopper. F. W. B. Miles, 90, Sherrard Road, Forest Gate, Essex.

March 24, 1926

246,525* Printing blankets. R. John, West End, Long Branch, New Jersey, U. S. A.

246,554 Piston packing. C. W. Carter, 1, Buckingham street, Liverpool, and E. A. Thomson, 45, Stanhope avenue, West End, Finchley, London.

246,579 Hockey balls. G. W. Beldam, Boston Lodge, Ealing, London.

246,631 Valve washers. T. H. Slack, Stafford House, London Road, Alderley Edge, Cheshire.

246,642 Horseshoe pads. T. Friend, 8, Lambhay Hill, Plymouth.

246,658 Surgical trusses. A. Wilson, 2, Cypress Gardens, Blyth, Northumberland.

246,685 Gaiters. C. F. M. Chambers, 8, Lynton Road, Gravesend, Kent.

246,727 Blasting detonator with rubber plug. T. C. Futers, 5, Collingwood street, Newcastle-on-Tyne.

*Not yet accepted.

246,734 Inflatable toys. J. A. Humphrey, 3635 Densmore street, Seattle, Washington, U. S. A.

246,759 Cycle saddles employing elastic air container. A. Baltensperger, Winterburg near Effretikon, Zurich, Switzerland.

New Zealand

January 28, 1926

54,655 Acoustic instrument diaphragm. Marconi's Wireless Telegraph Co., Ltd., Marconi House, Strand, assignee of Henry Joseph Round, 9, Woodberry Crescent, Muswell Hill, both in London, England.

Germany

426,628 (December 19, 1924). Exchangeable printing sheet of rubber or the like. Otto Krämer, Sächsischestrasse 9, Berlin-Wilmersdorf.

427,316 (August 15, 1925). Tire cover with mud guard. August Müller, Holzmarktstrasse 68, Berlin.

427,447 (September 28, 1921). Resilient tire. Albert Klafke, Hardenbergstrasse 18, Charlottenburg.

427,491 (April 7, 1925). Hair confiner consisting of a rubber band with hooks on both ends. Josef Nikles, Hutenstrasse 15, Würzburg.

Trade Marks

The United States

Two Kinds of Trade Marks Now Being Registered

Under the rules of the United States Patent Office, trade marks registered under the Act of February 20, 1905, are, in general, fanciful and arbitrary marks, while those registered under the Act of March 19, 1920, Section 1 (b), are non-technical, that is, marks consisting of descriptive or geographical matter or mere surnames. To be registered under the later act trade marks must have been used for not less than one year. Marks registered under this act are being published for the first time when registered, any opposition taking the form of an application for cancellation.

March 9, 1926, Act of February 20, 1905

210,052 PREMIER—inner tubes for tires. The Fisk Rubber Co., Chicopee Falls, Massachusetts.

210,086 Fanciful letter: D—rubber heels. United Shoe Machinery Corporation, Paterson, New Jersey, and Boston, Massachusetts.

210,091 SURE KRAN—tires and inner tubes. Brunswick Tire Corporation, New York, N. Y.

210,119 Representation of a tire and a tire patch and the words: CHEMICURE THE CHEMICAL CURE PATCH—tire patches. R. C. Moore, Hollywood, California.

210,140 NON-SKID—boots and shoes. Muskin Shoe Co., Baltimore, Maryland.

210,156 P. N. COMFOLETTE—brassieres, etc. I. Newman & Sons, Inc., New York, N. Y.

210,173 Representation of a football with the flange of the inflation valve colored red—stemless rubber bladders. The Seamless Rubber Co., Inc., New Haven, Connecticut.

210,208 Square containing the representation of a mule and above the words: MISSOURI MULE RUBBER PATCH—patches for inner tubes, hot water bottles, etc. George N. Little, Sumner, Missouri.

210,209 METROPOLITAN—tires and tubes. Gryphon Rubber & Tire Corporation, New York, N. Y.

210,258 PINORO—vulcanite teeth. H. D. Justi & Son, Philadelphia, Pennsylvania.

210,259 EKLOFORM—crown and vulcanite teeth. H. D. Justi & Son, Philadelphia, Pennsylvania.

March 9, 1926, Act of March 19, 1920

210,333 BETTERBILT—shoes. California Seamless Shoe Co., Long Beach, California.

March 16, 1926, Act of February 20, 1905

210,383 PNEUFLEX—tires. The B. F. Goodrich Co., New York, N. Y.

210,415 DOTTIE DIMPLE—shoes. William H. Walker & Co., Buffalo, New York.

210,417 In large type the word: THOROFILT, and in smaller type the words: DIRECT TO YOU—boots, shoes and slippers. W. H. Tomlinson & Co., Bay City, Michigan.

210,452 DOUBLE-LUCE-PENNANT—tires. The Fisk Rubber Co., Chicopee Falls, Massachusetts, and Cudahy, Wisconsin.

210,573 SOURÉT—shoes. Chicago Mail Order Co., Chicago, Illinois.

210,581 TRIMFOOT—shoes. Wizard Lightfoot Appliance Co., St. Louis, Missouri.

210,614 Representation of a section of hose with straight red band about one-fifth the diameter of the hose running longitudinally thereof—hose. The B. F. Goodrich Co., New York, N. Y.

210,615 Representation of a section of hose with helical band of red disposed helically at a pitch of about 45 degrees, the band being about one-fifth as wide as the diameter of the hose—hose. The B. F. Goodrich Co., New York, N. Y.

March 16, 1926, Act of March 19, 1920

210,631 D'ANDREA—slippers. D'Andrea Brothers, Inc., New York, N. Y.

March 23, 1926, Act of February 20, 1905

210,694 VULKEEZ—oil compound to free rubber from molds. Standard Oil Co., Whiting, Indiana, and Chicago, Illinois.

210,727 KIDDY-KUMFIT—babies' rubber pants or bloomers. Parker, Stearns & Co., Brooklyn, New York.

210,814 BULLS EYE WHITE ROCK—boots, shoes and overshoes. Hood Rubber Co., Watertown, Massachusetts.

210,815 The word: HOOD, through the center of which runs an arrow, the whole enclosed in a fanciful shape—boots, shoes and overshoes. Hood Rubber Co., Watertown, Massachusetts.

210,832 FORTMASON—golf balls, inflatable supports for bathers, rubber racket grips, etc. Fortnum & Mason, Ltd., London, England.

210,894 MERMAID—boots and shoes. Hood Rubber Co., Watertown, Massachusetts.

March 30, 1926, Act of February 20, 1905

211,037 Representation of a map of the United States containing the words: NATIONAL AUTOMOTIVE PARTS ASSOCIATION, across the top the letters: N. A. P. A.—brake lining, fan belts, radiator hose, etc. National Automotive Parts Association, Detroit, Michigan.

March 30, 1926, Act of March 19, 1920

211,062 KORK-KORE—indoor baseballs and playground balls. George Young & Co., Chicago, Illinois.

211,065 "HEALTHI-PANTY"—sanitary baby pants. Red Raven Rubber Co., Newark, New Jersey.

The Dominion of Canada

Registered

March 9, 1926

39,361 Word: "FLASH"—overshoes, mackintoshes, rubber coated cloths, etc. Ames Holden Tire & Rubber Corporation, Ltd., Kitchener, Ontario.

39,395 Word: "ATLAS"—raw or partly prepared rubber. Henry Gardner & Co., Ltd., 2 Metal Exchange Buildings, Leadenhall street, London, E. C. 3, England.

March 16, 1925

39,419 Circlet representing an endless chain—surgical dressings, rubber and other protectives, etc. Johnson & Johnson, Ltd., Montreal, Quebec.

39,437 A recurring series of figures each representing a vertical ridge towards one end of which is a lateral ridge terminating in a short vertical ridge which terminates in a second horizontal ridge, two adjacent figures forming between them a T-shaped configuration—pneumatic tires. Canadian Goodrich Co., Ltd., Kitchener, Ontario.

March 23, 1926

39,447 Representation of an overshoe sole with a square in the center on which appears the year 1924 and the letters and word: "B. I. R. Co. RIGA" and below the word: "QUADRAT"; below this square is a smaller square with the same description as above, and the words: "BALT. INDIA RUBBER COMP." printed around same, and the word: "QUADRAT" below—overshoes. Baltic India Rubber Co. "QUADRAT," Riga, Republic of Lettonia.

39,448 Representation of two squares, one above the other, bearing the year "1924" therein, and the letters and word: "B. I. R. Co. RIGA"; underneath each square appears the word: "QUADRAT" with the words: "BALT. INDIA RUBBER COMP." printed around the lower most square—overshoes. Baltic India Rubber Co. "QUADRAT," Riga, Republic of Lettonia.

39,449 Word: "QUADRAT"—overshoes. Baltic India Rubber Co. "QUADRAT," Riga, Republic of Lettonia.

39,474 Word: "STRONGPATH"—tires and tubes. The Goodyear Tire & Rubber Co., of Canada, Ltd., New Toronto, Ontario.

39,479 Word: "BELDAM'S"—packing. The Beldam Packing & Rubber Co., Ltd., 29, Gracechurch street, London, E. C. 3, England.

The United Kingdom

March 3, 1926

134,549 NASCOL—dress shields, etc. Nuera Art-Silk Co., Ltd., 47, Moseley street, Manchester.

462,499 AUSTIN—tennis balls, etc. Frank Austin Davis, trading as Austin, 55, High street, Bloomsbury, London, W. C. 2.

March 10, 1926

463,150 DUNLOP—tennis balls. The Dunlop Rubber Co., Ltd., Fort Dunlop, Holly Lane, Erdington, Birmingham, Warwickshire.

B464,448 MACONITE—preparations for insulating electric cables. The Macintosh Cable Co., Ltd., Ashbourne Road Mills, Payne street, Derby.

465,183 MASTERITE—asbestos jointing. Alice Lister, trading as The Lister Rubber Asbestos & Packing Co., Asbestos Works, Lower Gratton Road, Bradford, Yorkshire.

465,277 Representation of the rising sun and the letters and words: "R C M A" "RAY BRAND"—raw india rubber and crude palm oil. Naamlooze Vennootschap Rubber Cultuur Maatschappij "Amsterdam," Heerengracht 363 & 364, Amsterdam, Holland (c/o McKenna & Co., 31-34, Basinghall street, London, E. C. 2).

465,381 A square in the center of which appears the representation of a dog surrounded by a double circle; at the top and bottom of the square the words: "BULL DOG" and "BALATA"—machine belting. Hepburn & Gale, Ltd., 47, Weston street, Bermondsey, London, S. E. 1.

466,434 BECOL—ebonite or vulcanite instruments. The British Ebonite Co., Ltd., 25, Nightingale Road, Hanwell, London, W. 7.

466,435 BECOLATE—ebonite instruments. The British Ebonite Co., Ltd., 25, Nightingale Road, Hanwell, London, W. 7.

March 17, 1926

134,516 A square in the center of which appears the representation of a bull dog and the words: "TRADE MARK," these enclosed by a double circle; at the top of the square the words: "BULL DOG"—machine belting. Hepburn & Gale, Ltd., 47, Weston street, Bermondsey, London, S. E. 1.

466,533 LESMAH—rubber and gutta percha goods. A. Oppenheimer & Co., 38, Finsbury Square, London, E. C. 2.

March 24, 1926

B460,146 A circle enclosing a representation of the sun and the word: "RADIO"—elastic sandallings, webs and cords. Copestake, Crampton & Co., Ltd., 5, Bow Church Yard, London, E. C. 4.

New Zealand

January 28, 1926

23,400 Double circle enclosing the words: "NEW ERA"—rubber and gutta percha goods. The Goodyear Tire & Rubber Co., 1144 East Market street, Akron, Ohio, U. S. A.

Designs

The United States

69,683 Bathing cap. Term 14 years. Harry A. Bauman, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

69,705 Bathing cap. Term 14 years. John W. Higgins, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

69,770 Tire tread. Term 3½ years. Harold D. Reichard, assignor to The Akron Standard Mold Co., both of Akron, Ohio.

69,771 Resilient tire. Term 3½ years. Harold D. Reichard, assignor to The Akron Standard Mold Co., both of Akron, Ohio.

69,776 Tire. Term 14 years. Henry F. Schippel, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

69,777 Tire. Term 14 years. Henry F. Schippel, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

69,795 Tire. Term 14 years. Asa P. Cooley, Hubbard Woods, assignor to Montgomery Ward & Co., Inc., Chicago, both in Illinois.

69,796 Tire. Term 14 years. Asa B. Cooley, Hubbard Woods, assignor to Montgomery Ward & Co., Inc., Chicago, both in Illinois.

The Dominion of Canada

7,091 Undergarment. Carrie S. McMichael, Toronto, Ontario.

Germany

938,965 (December 18, 1925). Inner tube with cell-division for automobiles, cycles and motorcycles. Carl Damm, Reuterstrasse 15, Cassel-R.

939,265 (January 23, 1926). Rubber-soled slipper made without use of last. Georg Herr, Domstrasse 47, Offenbach a. M.

939,541 (January 13, 1926). Rubber finger-cot for cleaning teeth. Georg Leuthold, Markgrafenstrasse 14, Dresden.

939,666 (January 7, 1926). Soft rubber collars, cuffs, etc. Fritz Trillhase, Hütergasse 13, Erfurt.

940,064 (February 8, 1926). Waterproof marquee of double proofed material. L. Stromeyer & Co., Konstanz.

940,065 (February 8, 1926). Waterproof apron of double proofed material. L. Stromeyer & Co., Konstanz.

940,066 (February 8, 1926). Waterproof, lined professional and sporting gloves of double proofed fabric. L. Stromeyer & Co., Konstanz.

940,107 (January 27, 1926). Apparatus for vulcanizing pneumatic tire covers. Paul Siegel, Beuthen (O.-Schl.).

940,115 (February 6, 1926). Cover for pneumatic tires, particularly giant pneumatics Gummiwarenfabrik Emil Klauenberg, G. m. b. H., Braunschweig.

940,121 (February 8, 1926). Cover for resilient tires. Gummiwarenfabrik Emil Klauenberg, G. m. b. H., Braunschweig.

940,128 (February 9, 1926). Solid tires for wheels of conveying apparatus and the like. Meta Schneemilch, née Müller, Keiser-Friedrich-Ufer 9, Hamburg.

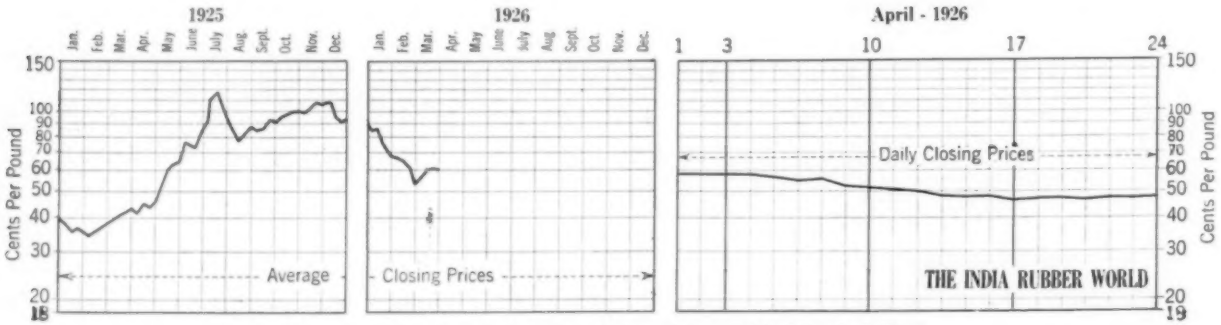
940,218 (November 30, 1925). Device for repairing tubes. Chemische Fabrik Eugen Ganz, G. m. b. H., Frankfurt a. M.

940,255 (February 2, 1926). Drawing apparatus (pantograph) of rubber. Karl Emich Mühle, Post Rummenohl, i. W.

940,529 (January 22, 1926). Rubber cloth with shoulder protection for hairdressers. Emil Foerster, Kolonnenstrasse 19, Berlin-Schöneberg.

940,592 (January 22, 1926). Rubber collar protector for use in hair-cutting. Curt Rupprecht, Josephinenstrasse 12, Dresden.

940,623 (February 11, 1926). Rubber protection to prevent soiling the exposed double seam in footwear. Alfred Beyer, Weissenfels a. d. Saale.



Ratio Graph of New York Closing Prices of Spot Ribbed Smoked Sheets

Review of the Crude Rubber Market

New York

THE rubber market in April was a continuation in dullness of that of the two months preceding. Consuming demand has been limited and scattering. Factories showed no buying interest in either spot or futures and were content to pick up bargain lots only. Spot ribbed smoked sheets were 58¼ cents April 1, and steadily declining to 48½ cents, April 26. First latex on these dates was 58¾ cents and 49 cents.

During the first week of April, prices declined sharply. London support appeared on the New York Exchange each day. Factories bought only filling in orders. The week closed with prices off and no improvement in sight. April 5, ribs were 58½ buyers, 59½ sellers; April 10, 51½ buyers, 52½ sellers. The second week the real business was done on the Exchange. The market was slow with little trading and no factory interest. April 12, ribs were 51 buyers, 51½ sellers; April 17, 47 buyers, 48 sellers. The third week was featureless. Prices held steady. There was no factory buying interest. April 19, ribs were 47½ buyers, 47½ sellers; April 24, 47½ buyers, 48 sellers; April arrivals totaled about 30,000 tons.

Market trading in April was confined practically to the Exchange. Factory buyers were not interested beyond June. Parás were generally neglected.

The outstanding event of the month was an official statement from the British Colonial office announcing changes in the operation of the Stevenson restriction plan.

The official announcement states that the exportable allowance for the quarter beginning May 1 will be 100 per cent. Thereafter, beginning August 1, the quarterly price average, regulating the exportable allowance, will be increased from the present rate of 15 pence a pound to 21 pence a pound.

Provision is made for restriction of export to 80 per cent of the standard production for the 3 months beginning August 1, if the average London price for spot rubber falls below 21 pence for the 3 months beginning May 1.

The effect of this announcement was to depress prices, paralyze business and renew the charge of bad faith against the rubber growers. The market effect is likely during the summer to become bullish by causing manufacturers to anticipate their July-September requirements, thus leading them to support the market earlier than usual. Manufacturers with large inventories based on high priced rubber may consider the new regulations fortunate rather than otherwise if they have a strong bull influence.

Importations of all grades in March were 42,677 tons, compared with 33,914 tons one year ago. Plantation arrivals for March were 40,177 tons, compared with 31,067 tons one year ago. Total importations of plantation rubber for three months ended March 31, 1926, were 108,381 tons, compared with 81,287 tons for the corresponding period of 1925. Total importations of all grades of rubber for the three months ended March 31, 1926, were 115,441 tons, compared with 87,330 tons for the corresponding period of 1925.

The Rubber Exchange of New York

On the New York Rubber Exchange the April market practically began on the fifth on account of Easter. The course of prices has been generally downward. The first week's notable feature was the increase in individual transactions indicating a broadening interest. The orderly manner of the decline in prices indicates the soundness of the movement. In the second week operations resulted in 2,090 contracts or a total of 5,225 tons. In the third week sales amounted to 4,000 tons. Price ranges for the months most heavily traded in were: May, high 48.60, low 46.10; July, high 46.90, low 44.20. The interest in the Rubber Exchange two months after its first session is indicated by the recent sale of a membership at $6,000.

London

The week following the Easter holidays the market was weak and declining. Heavy speculative offerings and the increase of spot stocks caused the market at the week end to sag to 26¼*d* from 28½*d* at the beginning of the week. The following week brought continuation of the decline; the range for the week was from 26*d* on April 12 to 23½*d* on April 17. The first discouraging feature occurred early in the week on receipt of American consumption reports for the first quarter. This was followed by

New York Rubber Dealers' Spot Closing Prices—Cents, Per Pound

PLANTATIONS	March, 1926															April, 1926									
Sheet	15	16	17	18	19	20	22	23	24	25	26	27	29	30	31	1	2*	3*	5	6	7	8	9	10
Ribbed Smoked	61½	59½	59¼	61	60¼	61¼	61½	60¼	60½	59¾	59	59½	59	58¼	58¼	58¼	..	..	58¼	57¼	55¼	55¼	52¾	52
Crêpe																								
First Latex	62¼	60¼	61¼	62¼	61½	62¼	62¼	61¼	61½	60½	60¼	60½	59¾	58¾	58½	58½	..	..	58¾	58	55½	56	53	52½
No. 2 blanket	58½	58	58	58	57	57¼	58½	57	58	57	57	57½	57	55¾	55¼	55½	..	..	56	54¼	53	53¼	50¼	49¼
No. 3 blanket	57½	57	57	57¼	56	56¾	57½	56	57	56	56	56½	56	55	54¼	54¾	..	..	55	53¼	51¾	52¾	49	48
No. 4 blanket	56¼	56	56	56	54¾	55½	56¼	54¾	56	55	55	55¼	55¼	54	53½	53½	..	..	53¾	52¾	50¼	52	47½	46¼
Thin clean brown	57	57	57	57	56	57	57½	56	57	56¾	56	56¾	56¼	55	54½	54½	..	..	55	54	52	52¾	49¾	48¼
Rolled brown	54¼	53¼	53½	53½	52¾	53½	53½	52¼	53¼	52½	52½	52½	52¾	51¼	51½	51¼	..	..	51¼	50	48	48¼	44¼	44¼
Off Latex	61	59½	60	61	60½	60¾	61	60	60	59¼	58¾	59¼	58¾	57¾	57½	57½	..	..	57½	57	54¼	55¼	51½	51

* Holiday.

heavy offerings of disheartened speculators which depressed the price to the lowest since May, 1925.

The next week the increase of stocks discouraged buying but the entrance of large dealers halted the decline and the price advanced due to reports of American buying in Singapore. The week's prices were 23*d* April 19; 24*d* April 22 and 23½*d* April 24. London stocks have increased weekly in tonnage with one exception for the past two months. The weekly record was as follows: March 29, 12,795 tons; April 5, 13,750 tons; April 12, 15,411 tons; April 19, 17,064 tons; April 25, 18,224 tons.

Singapore

The market during the first week in April was dull, weak and declining. A brief steadier and upward tendency was quickly displaced by sagging in sympathy with London conditions. The downward tendency prevailed the second and third weeks, relieved by a slight advance near the end of the third week by local American buying. The closing prices at the beginning of each week were as follows: April 6, 26⅝*d*; April 12, 24⅞*d*; April 19, 21¼*d*. On April 24 the price was 21½*d*.

New York Quotations

Following are the New York spot and future rubber quotations, for one year ago, one month ago, and March 25, the current date:

Plantation Hevea	1925 April 25,	1926 March 25,	1926 April 26,
Rubber latex (Hevea)....*gal*	$1.75 @$2.00	$2.00 @	$2.00 @
CREPE			
First latex, spot	.44½@	.60½@	.48 @.48½
Apr.-May	.44¼@	.60 @	.48¼@
May-June	.43 @	.59½@	.47 @.48
July-Sept.	.41½@	.58½@	.46½@.47
Oct.-Dec.	.40 @	.57½@	.45 @.45½
Off latex, spot	.44 @	.59½@	.47½@
Amber No. 2, spot	.43½@	.58 @	.44½@.45
Apr.-May	.43½@	.58 @	.44 @.44½
May-June	.42½@	.57 @	.43¼@.43½
July-Sept.	.41 @	.56 @	.43 @.43¼
Oct.-Dec.	.39½@	.55 @	.42½@.43
Amber No. 3, spot	.43¼@	.57 @	.44 @.45
Brown, thin, clean	.43½@	.57 @	.44 @
Brown, specky	.43 @	.56 @	.43 @
Brown, roll	.42½@	.52 @	.40 @
Sole crêpe	.48½@	.95 @	.80 @
SHEET			
Ribbed, smoked, spot	.44 @	.59 @	.48 @.48½
Apr.-May	.44 @	.59 @	.48¼@
May-June	.43 @	.58½@	.47½@.47¾
July-Sept.	.41½@	.57 @	.46½@.46¾
Oct.-Dec.	.40 @	.56 @	.44½@.45

East Indian	1925 April 25,	1926 March 25,	1926 April 26,
PONTIANAK			
Banjermassin	.08 @	.17 @.19½	@
Palembang	.08½@	@	@
Pressed block	.13¾@.14	.32 @.36	@
Sarawak	.08 @	@	@
South American			
PARAS			
Upriver, fine	.37½@	.54 @	.42½@.43
Upriver, fine	*.48½@	*.74 @	@
Upriver, medium	.35 @	.48 @	.37 @
Upriver, coarse	.31 @	.41½@	.30 @.30½
Upriver, coarse	*.44 @	*.60 @	@
Islands, fine	@	.50 @	.36½@.37
Islands, fine	@	*.66 @	@
Islands, fine	@	@	@
Cametá	@	.40 @	.27 @
Acre, Bolivian, fine	.37½@	.55 @	.44 @
Acre, Bolivian, fine	*.49 @	*.75 @	@
Beni Bolivian	.37½@	.56 @	.45 @
Madeira	.38 @	.56 @	.45½@
Peruvian, fine	@	.53 @	.43 @
Tapajos, fine	.36 @	.51 @	.41 @
CAUCHO			
Upper Caucho ball	.32 @	.43½@	.29½@.30
Upper Caucho ball	*.44½@	*.62½@	@
Lower Caucho ball	.31 @	.40 @	.22½@.23
Maniçobas			
Ceará negro heads	.30 @	.45 @	.40 @
Ceará scrap	.24 @	.25 @	.20 @
Maniçobas 30% guaranty	.30 @	.40 @	.37 @
Mangabeira, thin sheet	.27½@	.41 @	.40 @
Centrals			
Central scrap	.32 @	.40 @	†.32 @
Central wet sheet	.25 @	.27 @	†.24 @
Corinto scrap	.32 @	.41 @	†.29 @
Esmeralda sausage	.32 @	.40 @	†.32 @
Guayule			
Duro, washed and dried	.35 @	.48 @	@
Leon, washed and dried	@	.40 @	@
Gutta Percha			
Gutta Siak	.17¼@.18	.35 @.38	@
Gutta Soh	.28 @	.30 @.35	@
Red Macassar	3.00 @ 3.50	3.00 @	@
Balata			
Block, Ciudad Bolivar	.67 @	.64½@	@
Colombia	.55 @	.53½@	@
Panama	.54 @	@	@
Surinam	.77 @	.74 @.75	@
amber	.83 @	.78 @.80	@
Chicle			
Honduras	‡.58 @.68	‡.64 @	‡.64 @
Yucatan, fine	‡.58 @.68	‡.65 @	‡.65 @

*Washed and dried crêpe. Shipment from Brazil.
†Nominal. ‡Duty paid.

The Rubber Exchange of New York, Inc.

Daily Market Futures—Ribbed Smoked Sheets—Closing Prices—Cents Per Pound

	March, 1926			April, 1926																			
	29	30	31	1	2*	3*	5	6	7	8	9	10	12	13	14	15	16	17	19	20	21	22	23	24
1925																								
April	59.10	58.80	58.50	58.60	.....	.....	59.00	57.70	55.50	56.30	52.80	55.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
May	58.60	58.20	58.00	58.10	.....	.....	58.40	57.20	55.40	55.80	52.40	52.00	51.00	49.80	48.60	47.60	48.30	46.90	47.60	47.50	47.40	48.60	47.40	48.20
June	58.10	57.80	57.50	57.90	.....	.....	58.00	56.70	55.00	55.30	51.90	51.50	50.50	49.10	48.00	46.20	46.90	46.00	46.40	46.50	46.00	47.50	46.50	47.00
July	57.70	57.30	56.90	57.20	.....	.....	57.40	56.10	54.30	54.80	51.40	50.90	50.00	48.40	47.20	45.50	46.40	45.10	45.80	45.60	45.00	46.80	45.50	46.50
August	57.20	56.80	56.60	56.56	.....	.....	56.90	55.80	53.90	54.40	51.00	50.50	49.60	48.10	46.80	45.20	46.10	44.70	45.80	45.30	44.50	46.20	45.30	46.20
September	56.80	56.20	56.20	56.10	.....	.....	56.40	55.40	53.50	54.00	50.50	50.00	49.20	47.80	46.50	44.90	45.80	44.50	45.60	45.00	44.30	45.60	45.10	45.80
October	56.30	55.50	55.90	55.70	.....	.....	56.00	55.00	53.00	53.50	50.30	49.50	48.80	47.40	46.00	44.60	45.60	44.00	45.50	44.80	44.20	45.30	44.90	45.60
November	56.00	55.30	55.40	55.30	.....	.....	55.70	54.50	52.50	53.00	50.10	49.00	48.40	47.00	45.50	44.30	45.40	43.80	45.50	44.70	44.10	45.20	44.70	45.60
December	55.90	55.00	55.00	55.00	.....	.....	55.40	54.00	52.20	52.50	50.00	48.80	48.00	46.50	45.10	44.00	45.20	43.50	45.50	44.70	44.00	45.10	44.50	45.60
1926																								
January	55.80	55.00	54.00	54.50	.....	.....	55.00	53.50	51.50	52.00	49.80	48.50	47.80	46.10	44.70	44.00	45.00	43.30	45.30	44.50	43.90	45.00	44.50	45.30
February	55.30	54.50	54.00	54.00	.....	.....	54.50	53.00	51.00	51.50	49.50	48.00	47.00	45.70	44.30	44.00	44.50	43.10	45.00	44.20	43.80	44.90	44.30	45.10
March	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47.20	45.30	43.90	43.70	44.50	43.00	44.80	44.00	43.60	44.80	44.10	45.00

* No Sessions.

New York Rubber Dealers' Spot Closing Rubber Prices —Cents, Per Pound

Plantations	April, 1926 12	13	14	15	16	17	19	20	21	22	23	24
Sheet												
Smoked Ribbed	51	50	48½	48	48¼	47¼	47½	47¾	47¼	48	47½	47¾
Crêpe												
First latex	51½	50½	49	48¼	48½	47½	48¼	48	47¾	48¼	47½	48
No. 2	48½	47¼	46¼	45¾	45½	45	45½	44¾	44¾	45¼	44¾	45¼
No. 3	47½	46½	45½	44¾	44½	44	44½	43¾	43¾	44½	43¾	44½
No. 4	46½	45½	44½	43¾	43½	43	43½	42¾	42¾	43½	42¾	43½
Thin, brown	47¾	46½	45¼	44½	44¾	44	44½	43¾	43¾	44½	43½	44½
Rolled	44½	43¼	42¼	41½	40¾	40½	40¾	39¾	39¾	40½	39¾	39¾
Off latex	50½	49¼	48	47¼	47½	46½	47¼	46½	46½	47	46½	46¾

Comparative Low and High New York Spot Rubber Prices

Plantations	1926*	April 1925	1924
First latex crêpe	$0.47½@$0.60	$0.41¼@$0.45¼	$0.22⅜@$0.24
Smoked sheet, ribbed	.46½@ .59½	.41¼@ .44¾	.22 @ .23⅛
PARAS			
Upriver, fine	.41 @ .53½	.36 @ .37½	.19 @ .21
Upriver, coarse	.30 @ .38	.29¼@ .30¾	.16 @ .17½
Islands, fine	.35 @ .48	.32½@ .33	.16 @ .17
Cametá	.25 @ .34	.17½@ .18	.11¼@ .12

*Figured to April 24, 1926.

Reclaimed Rubber

New York

The strenuous demand for reclaims slackened somewhat a few weeks ago due to the lateness of the spring which influenced general business unfavorably. Tire companies have resumed requisitioning their deferred commitments on reclaims. A number of them report that dealers are ordering express shipments of tires to a greater extent than in many years. The shortage of stocks thus indicated is agreeably at variance with the general trade opinion. The heavy future commitments for reclaims lead to the expressed opinion that this season's demand for "one year tires" will exceed that of last year.

Reclaiming mills are operating full and all have greatly increased their capacity by plant enlargements and installation of new equipment.

Reflecting the latest decline in crude rubber prices most of the standard grades of reclaim are quoted lower than one month ago. The exceptions are certain tire qualities and the shoe grades.

New York Quotations

April 26, 1926

	Specific Gravity	Price Per Pound
Auto Tire		
Black	1.21	$0.10¾ @ $0.11
Black, washed	1.18	.12 @ .12¼
Black selected tires	1.20	.12½ @ .12¾
Dark gray	1.35	.14½ @ .15½
Light gray	1.38	.16½ @ .17½
White	1.40	.19 @ .20
High Tensile Black		
Super-reclaim, No. 1	1.20	.24 @ .25
No. 2	1.20	.18 @ .19
Shoe		
Unwashed	1.60	.10½ @ .10¾
Washed	1.50	.12¾ @ .13
Tube		
No. 1	1.00	.25 @ .26
No. 2	1.18	.18 @ .19
Uncured Tire Friction		
No. 1	1.00	.40 @ .42
No. 2	1.20	.30 @ .32
Miscellaneous		
High grade, red	1.35	.18 @ .19
Truck tire, heavy gravity	1.55	.10 @ .10½
Truck tire, light gravity	1.40	.10½ @ .11
Mechanical blends	1.60	.08 @ .09

British Malaya

Rubber Exports

An official cablegram from Singapore to the Malay States Information Agency, 88 Cannon street, London, E. C. 4, England, states that the amount of rubber exported from British Malaya in the month of March last totaled 25,012 tons. The amount of rubber imported was 14,800 tons, of which 12,525 tons were declared as wet rubber.

The following are comparative statistics:

	1925		1926	
	Gross Exports Tons	Foreign Imports Tons	Gross Exports Tons	Foreign Imports Tons
January	19,183	10,132	30,452	10,237
February	21,622	10,071	30,440	8,306
March	26,836	13,399	35,012	14,800
Totals	67,641	33,602	95,904	33,343

Distribution

The following is a comparative return of distribution of shipments during the months of February and March, 1926:

	February, 1926 Tons	March, 1926 Tons
United Kingdom	7,269	7,849
United States of America	19,945	22,809
Continent of Europe	1,957	1,890
British possessions	600	622
Japan	669	1,837
Other foreign countries	.....	5
Totals	30,440	35,012

Dealers' Stocks of Rubber

An official cablegram from Singapore to the Malay States Information Agency, 88 Cannon street, London, E. C. 4, England, states that dealers' stocks of rubber on March 31, 1926, were in Singapore 15,910 tons and in Penang 2,479 tons.

The Market for Rubber Scrap

New York

Consuming demand on all grades of rubber scrap has been gradually reducing these sorts. Conditions at present are unusually quiet due to the declines in crude rubber and reclaims and the dullness induced in business by the backward spring.

Neither dealers nor reclaimers are in the market for scrap. The enlargement of reclaiming facilities now in active progress assumes a larger potential demand for scrap that will soon be effective.

BOOTS AND SHOES. The full list of boot and shoe grades is lower than a month ago. The demand is very light.

INNER TUBES. Prices on all qualities have dropped sharply, and the demand is small and scattering.

MECHANICALS. All grades are lower. Air-brake hose is quoted $2 a ton less than last month. Such demand as exists is confined to the better grades.

MIXED TIRES. Tires have suffered a decline ranging from $2 to $4 a ton according to quality. Current demand is rather light and routine.

Quotations for Carload Lots

April 26, 1926

Boots and Shoes			
Boots and shoes, black	lb.	$0.02	@$0.02⅜
Red and white	lb.	.01⅜ @	.01¼
Trimmed arctics, black	lb.	.01⅛ @	.01¼
Untrimmed arctics	lb.	.00⅞ @	.01
Tennis shoes and soles	lb	.00⅞ @	.01
Hard Rubber			
No. 1 hard rubber	lb.	.14 @	—
Battery jars, black compound	lb.	.02 @	.02⅛
Inner Tubes			
No. 1, floating	lb.	.09¾ @	.10
No. 2, compounded	lb.	.07½ @	.07¾
Red	lb.	.06¾ @	.07
Mixed tubes	lb.	.06⅛ @	.06½
Mechanicals			
Mixed black scrap	lb.	.01⅜ @	.01¼
Heels	lb.	.01 @	.01⅛
Hose, air-brake	ton	26.00	@28.00
regular	ton	18.00	@20.00
No. 1 red	lb.	.02½ @	.02¾
No. 2 red	lb.	.01¾ @	.01½
Red packing	lb.	.01¾ @	.01⅞
White, druggists' sundries	lb.	.03¼ @	.03½
Mechanical	lb.	.02 @	.03
Tires			
Pneumatic Standard—			
Mixed auto tires with beads	ton	26.00	@27.00
Beadless	ton	36.00	@37.00
White auto tires with beads	ton	44.00	@45.00
Beadless	ton	63.00	@64.00
Mixed auto peelings	ton	47.00	@48.00
Solid—			
Mixed motor truck, clean	ton	45.00	@46.00

CANTON RUBBER SOLE INDUSTRY

Rubber soles were first introduced into Canton, China, about fifteen years ago. The demand for such goods showing a rapid increase, certain Chinese established in 1917 the Kwantung Bros. Rubber Manufacturing Co., while in 1919 several other organizations developed, including the Yi Yi Rubber Manufacturing Co., the Chu Kwang Rubber Co., the Canton Industrial Rubber Manufacturing Co., and the Chung Hwa Rubber Co. During the two years following, other organizations came into existence, until the monthly output of the twenty companies reached 600,000 pairs of soles. The markets becoming clogged, and prices declining, many of these concerns went out of business, and at present only a few of the older and better organized companies are operating.—*Chinese Economic Bulletin.*

ACCORDING TO STATISTICS PREPARED BY THE DEPARTMENT OF Commerce, Italian exports of pneumatic casings and tubes, for motor cars, motor cycles and bicycles, numbered in 1925 800,700, or 8,784,000 kilos. This compares with figures for 1924 of 7,344,800 kilos, and 1923, 4,908,300 kilos.

The Market for Chemicals and Compounding Ingredients

New York

THE movement of standard compounding ingredients has maintained a heavy tonnage notwithstanding the fact that in the principal lines of rubber goods production has been running somewhat under the usual rate of output. Spring orders for compounding supplies are rapidly increasing to that representing full volume of rubber goods production. Material prices generally are stabilized.

ACCELERATORS. Among the many reliable accelerators offered those that are specially adapted for use with reclaims are in increasing demand. Accelerators of the milder types continue in favor because of their general compounding applicability and freedom from scorching effect on mill and calender.

ANTI-OXIDANTS. Antox is a new anti-oxidant material which has recently been introduced. All the well-known ones are proving very popular. They are destined to play an important part in maintaining the life of every grade of rubber goods.

BENZOL. This is now running into restricted seasonal production. Spot stocks are small, prices firm and demand equal to capacity production. Early in April the pure grade was advanced one cent a gallon.

CARBON BLACK. Standard rubber grades are firm. They are moving well on large contracts into the rubber industry. April closed with black steady and strong.

CLAY. High grade compounding clay is moving freely. It is accepted popularly as the cheapest ingredient available for rubber products subject to hard wear. Prices are unchanged.

LITHARGE. Contract litharge is moving steadily. Demand generally is seasonal with the market slow and unchanged most of the month. About the middle of April the commercial grade in casks was reduced 1 cent a pound.

LITHOPONE. The market has been routine and prices steady. Manufacturers are booking orders 6 months ahead at current quotations.

MINERAL RUBBER. The compounding economies forced by the high prices for crude rubber greatly increased the demand for mineral rubber. The supply of this material is believed to be wholly from domestic sources, and most dependable in grade.

SOLVENT NAPHTHA. This solvent is practically always in short supply indicating inadequate producing facilities. Prices are unchanged and spot stocks sold up.

SUBLIMED LEAD. The demand the past month has been routine and hand-to-mouth with prices unchanged.

ZINC OXIDE. A steady undertone has featured the routine market. Prices are steady. Sales of zinc oxide and lithopone by domestic manufacturers last year are reported to have been the largest in the history of the industry. Sales of zinc oxide gained 17 per cent and of lithopone 30 per cent in 1925 over 1924. The average values per ton were less due to competition.

New York Quotations

April 26, 1926

Accelerators, Inorganic				
Lead, carbonate	lb.	$0.10¼	@	
Lead, red	lb.	.11¼	@	
sublimed blue	lb.	.10	@	
sublimed white	lb.	.10	@	
Lime, R. M. hydrated	ton	15.00	@	
Litharge	lb.	.10¾	@	
Magnesia calcined, light, (bbls.)	lb.	.20	@	
calcined, md. light (bbls.)	lb.	.07	@	
calcined, extra light (bbls.)	lb.	.40	@	
calcined, heavy (bbls.)	lb.	.05	@	
magnesium, carb., light (bags)	lb.	.05⅞	@	.07
Orange mineral A.A.A	lb.	.13½	@	
Rubber lead No. 4	lb		@	
Accelerators, Organic				
A1	lb.	.26	@	.30
A 5-10	lb.	.37	@	.40
A-7	lb.	.70	@	.80
A 10	lb.	.47	@	.55
A-19	lb.	.80	@	.90
A-40	lb.	.70	@	.80
Aldehyde ammonia	lb.	.82	@	.93
Aniline (drums)	lb.	.17	@	
B. B.	lb.	1.05	@	1.07
D. P. G. salt	lb.	.76	@	
Di-ortho-tolylguanidine	lb.	1.08	@	
Diphenyl guanidine	lb.	.88	@	
Ethylidine aniline	lb.	.65	@	
Excellerex	lb.	.30	@	.35
Formaldehyde aniline	lb.	.42	@	
Grasselerator 808	lb.	1.25	@	1.50
Heptene	lb.	.55	@	
Hexamethylene tetramine	lb.	.80	@	.85
Methylene aniline	lb.		@	
Methylene dianiline	lb.	.40	@	
Monex	lb.	3.75	@	5.00
No. 999 lead oleate	lb.	.17	@	.18
R. & H. 50 (100 lb. drums)		.60	@	
Super-sulphur, No. 1	lb.	.50	@	
No. 2	lb.	.18	@	.25
Tensilac No. 39	lb.	.70	@	
No. 41	lb.	.65	@	
Thiocarbanilide	lb.	.28	@	
Trimene	lb.	.75	@	
base	lb.	1.20	@	1.35½
Accelerators, Organic—*(Continued)*				
Triphenylguanidine	lb.	$0.69	@	.73
Tuads	lb.	4.50	@	5.00
Vulcone	lb.	.74	@	
Zimate	lb.	5.00	@	
Acids				
Acetic 28% (bbls.)	100 lb.	$3.50	@	
glacial (carboys)	100 lb.	12.21	@	
Oleic	lb.	.10	@	.10¼
Sulphuric, 66° (carboys)	lb.	.06	@	.08
Alkalies				
Caustic soda	100 lbs.	3.20	@	3.91
Sulphite soda	100 lbs.	3.25	@	
Anti Oxidants				
Age-Rite	lb.	.85	@	.90
Antox	lb.	.88	@	
V. G. B.	lb.	.70	@	
Colors				
BLACK				
Bone	lb.	.05½	@	.11
Carbon				
A. & W. nonfli No. 1	lb.	.40	@	
No. 2	lb.	.25	@	
Aerfloted arrow	lb.	.09	@	.13
Compressed	lb.	.09½	@	.13½
Uncompressed	lb.	.09	@	.13
Micronex	lb.	.10	@	.14
Drop	lb.	.07½	@	.15
Lamphlack	lb.	.12	@	.40
Thermatomic carbon	lb.	.05	@	
BLUE				
A. & W. blue	lb.	2.00	@	
Du Pont, N.	100 lbs.	1.35	@	
Marine, A. C.	100 lbs.	1.30	@	
Prussian	lb.	.34	@	.35
Ultramarine	lb.	.09	@	.35
BROWN				
Sienna, Italian	lb.	.06½	@	.07½
Umber, Turkey	lb.	.04½	@	.06½
GREEN				
A. & W. green	lb.	2.00	@	
Chrome, light	lb.	.44	@	.46
medium	lb.	.45	@	.48
dark	lb.	.46	@	.50
Du Pont, G. L.	100 lbs.	.30	@	
Y. L.	100 lbs.	.75	@	
Oxide of chromium	lb.	.38	@	
Colors—*(Continued)*				
ORANGE				
Du Pont R. O.	100 lbs.	$1.30	@	
R. X.	100 lbs.	1.30	@	
Y. O.	100 lbs.	1.60	@	
Y. X.	100 lbs.	1.15	@	
RED				
A. & W. red	lb.	2.50	@	
purple	lb.	2.00	@	
Antimony, golden	lb.	.16	@	
golden 15/17%	lb.	.20	@	
Antimony, crimson	lb.	.50	@	
crimson, R.M.P. No. 3	lb.	.48	@	
7-A	lb	.37	@	
Z-2	lb	.19	@	
Sulphuret vermilion	lb.	.37½	@	
Du Pont R. I.	100 lbs.	2.00	@	
R. S.	100 lbs.	1.45	@	
Brilliant A. C.	100 lbs.	1.35	@	
Iron Oxides				
bright red pure domestic	lb.	.12	@	
bright red pure English	lb.	.14	@	
bright red reduced English	lb.	.11	@	
bright red reduced domestic	lb.	.10	@	
Indian (maroon), red pure domestic	lb.	.11	@	
Indian (maroon), red pure English	lb.	.11	@	.15
Indian (maroon), red reduced English	lb.	.09	@	.10
Indian (maroon), red reduced domestic	lb.	.08	@	
Oximony	lb.	.13¼	@	
Spanish red oxide	lb.	.04	@	
Venetian reds	lb.	.02¼	@	.05¼
Vermilion, English quicksilver	lb.	1.57	@	1.62
WHITE				
Albalith	lb.	.05⅝	@	.06⅛
Lithopone	lb.	.05¼	@	.05¾
Azolith	lb.	.05⅝	@	.06⅛
Sterling	lb.	.05⅝	@	.06⅛
Zinc Oxide				
AAA (lead free)	lb.	.07¼	@	.07¾
Azo (factory):				
ZZZ (lead free)	lb.	.07¼	@	.07¾
ZZ (5% leaded)	lb.	.06¾	@	.07⅜
Z (8% leaded)	lb.	.08	@	.08½

New York Quotations

April 26, 1926

Colors

WHITE—*(Continued)*

French Process			
Green seal	lb.	$0.11⅜	@
Red seal	lb.	.10⅜	@
White seal	lb.	.12⅜	@ .12⅜
Horse Head Brands			
Selected	lb.	.07¾	@ .08¼
Special	lb.	.07¾	@ .08¼
XX red	lb.	.07¼	@ .07¾
Leaded Brands			
Lehigh	lb.	.08	@ .08½
Standard	lb.	.07⅞	@ .07⅝
Sterling	lb.	.08	@ .08½
Superior	lb.	.08	@ .08½
Palmerton Process			
Kadox, black	lb.	.10⅞	@ .11⅛
blue	lb.	.09⅞	@ .10⅛
red	lb.	.08⅞	@ .09⅛

YELLOW

A. & W. yellow	lb.	2.50	@
Arsenic	lb.		@
Chrome	lb.	.17½	@ .18½
Du Pont N.	100 lbs.	4.00	@
Grasselli cadmium	lb.	1.60	@ 1.75
Ochre, domestic	lb.	.02	@ .02½
imported	lb.	.03¼	@ .03¾
Oxide, pure	lb	.09	@ .10½

Compounding Ingredients

Aluminum flake (sacks c.l.)	ton	21.85	@
(sacks l.c.l.)	ton	24.50	@
Aluminum silicate	ton	24.00	@26.00
Ammonia carbonate	lb.	.13½	@ .15
Asbestine	ton	13.50	@14.50
Barium, carbonate	ton	54.00	@55.00
dust	lb.	.05	@ .06
Barytes, imported	ton	30.00	@
water ground and floated	ton	23.00	@25.00
Basofor	lb.	.04½	@
Blanc fixe, dry	ton	80.00	@82.50
pulp	ton	55.00	@57.50
Chalk	lb.	.02½	@ .05¼
Clay, blue ribbon (c. l. fcty.)	ton	14.00	@
Blue Ridge, dark	ton	9.00	@
light	ton	12.00	@
Catalpo (facty.)	lb.	.02	@
China	lb.	.01¾	@ .02½
Dixie	ton	20.00	@
Langford	ton	12.00	@
Mineral Flour (Florida)	ton	20.00	@
Suprex	ton	20.00	@30.00
Tuscan	ton	12.00	@
White floss	ton	17.00	@
Cotton flock, black	lb.	.11½	@ .12½
light-colored	lb.	.12	@ .14
white	lb.	.14½	@ .26
Cotton linters clean mill run	lb.		@
Glue, high grade	lb.	.20	@ .29
medium	lb.	.18	@ .24
low grade	lb.	.12	@ .14

Compounding Ingredients—*(Continued)*

Infusorial earth	ton	$45.00	@
Mica, amber (fact'y)	lb.	.05	@
Diamond	lb.	.05½	@ .07
Pumice stone, powd.	lb.	.03	@ .05
Rotten stone (bbls.)	lb.	.02½	@ .04½
Slate flour (fact'y c. l.)	ton		@
Soap bark	lb.	.09¼	@ .10
Soapstone	ton	15.00	@22.00
Sodium bicarb.	100 lbs.	2.00	@ 2.41
Starch, pewd. corn			
Buffalo (bbls.)	100 lbs.	3.39	@ 3.49
Buffalo (bags)	100 lbs.	3.12	@ 3.22
Talc, domestic	ton	16.00	@25.00
Terra blanche	ton	23.00	@25.00
Whiting, Chalk, imported			
Commercial	100 lbs.	.90	@ 1.00
Westminster	100 lbs.	1.50	@ 2.00
English, cliffstone	100 lbs.	1.50	@
Quaker	ton	13.00	@
Sussex	ton	8.00	@
Westminster Brand	100 lbs.		@
Witco (c.l.) (fact'y)	ton	12.00	@
Wood pulp, XXX (facty.)	ton	35.00	@
X (facty.)	ton	25.00	@

Mineral Rubber

Genasco (facty.)	ton	50.00	@52.00
Gilsonite (fact'y)	ton	37.14	@39.65
Granulated M. R.	ton	33.00	@38.00
Hydrocarbon, hard	ton	29.00	@35.00
Hydrocarbon, soft	ton	29.00	@35.00
Ohmlac Kapak, M-R	ton		@
K-4	ton		@
320/340 m. p. hydrocarbon	ton	47.00	@52.00
300/310 m. p. hydrocarbon	ton	42.00	@47.00
Paradura (fact'y)	ton	70.00	@72.50
Pioneer, M. R., solid (fac.)	ton	42.00	@44.00
M. R. granular	ton	52.00	@54.00
Robertson, M. R. solid (facty.)	ton	35.00	@75.00
M. R. gran. (facty.)	ton	42.00	@80.00

Oils (Softeners)

Castor, No. 1, U. S. P.	lb.	.13¼	@
No. 3, U. S. P.	lb.	.12¾	@
Corn, crude (bbls.)	lb.	.11¼	@
Cotton, summer yellow	lb.	.12½	@
Cycline	gal	.28	@ .34
Glycerine	lb.	.23½	@ .24
Linseed, raw	gal.	.11	@
Liquid rubber	lb.	.12	@
Palm lagos	lb.	.086	@
niger	lb.	.0805	@
Peanut, crude	lb.	.12½	@
refined	lb.	.13½	@
Petrolatum, standard	lb.	.06	@ .08
sticky	lb.	.08	@ .10
Pine, steam distilled	gal.	.68	@
Plastone	lb	.39	@
Rapeseed, refined	gal.	.92	@
Rosin	gal.	.65	@
Synthecite	lb.	.06	@
Synthe-Plastic	lb.	.06	@
Tackol	lb.	.10	@ .15
Tar	gal.	.42	@

Resins and Pitches

Pitch, Burgundy	lb.		@
Fluxol hardwood	lb.	.02¾	@ .04
ponto	lb.		@
Rosin, K (bbl.)	280 lbs.	14.25	@
strained (bbl.)	280 lbs.	12.00	@
Shellac, fine orange	lb.	.70	@
Tar, pine, retort	bbl	20.00	@
kiln	bbl.	20.00	@

Solvents

Benzol (90%, 7.21 lbs. gal.) pure	gal.	.24	@ .29
Carbon bisulphide (10.81 lbs. gal.) 99.9% pure (drums)	lb.	.05½	@ .06¼
tetrachloride (13.28 lbs. gal.) 99.7% pure (drums)	lb.	.07	@ .08
Gasoline No. 303			
Tankcars	gal.	.22	@
Drums, c. l.	gal.	.25	@
Drums, l. c. l.	gal.	.28	@
Naphtha 68° Bé., 122°, 324°	gal.	.20	@
70° Bé., 114°, 314°	gal.	.21	@
71° Bé., 112°, 304°	gal.	.22	@
Turpentine, spirits	gal.	1.01	@
wood, steam distilled	gal.	.93	@

Substitutes

Black	lb.	.08½	@ .14
Brown	lb.	.08	@ .15
White	lb.	.09	@ .17

Vulcanizing Ingredients

Sulphur chloride (drums)	lb	.04½	@ .05
Soft rubber, 100% pure (c.l.)	100 lbs.	2.50	@ 2.75
(l.c.l.)	100 lbs.	2.80	@ 3.30
Sulphur, Brooklyn brands			
Refined velvet (bbls.)	240 lbs.		@
(bags)	150 lbs.		@
Superfine flour (bbls.)	210 lbs.		@
(bags)	100 lbs.		@
Tire brand, superfine	100 lbs.		@
Tube brand, velvet	100 lbs.		@

(See also Colors—Antimony)

Waxes

Wax, beeswax, white, com.	lb.	.55	@
carnauba	lb.	.38	@ .50
ceresine, white	lb.	.12½	@
montan	lb.	.08	@
ozokerite, black	lb.	.30	@
green	lb.	.32	@
Paraffin			
122/124 white crude scale	lb.	.05⅛	@ .05¼
124/126 white crude scale	lb.	.05⅛	@ .05⅜
130/132 fully refined	lb.	.06	@ .06¼
128/127 fully refined	lb.	.06⅛	@ .06¼

ANTOX

Antox is a light tan-colored powder recommended for improving the aging properties and the resistance to heat of all dark colored rubber compounds. It is classed as an anti-oxidant although it also has some accelerating effect on vulcanization which should be allowed for. Antox disperses readily and uniformly in rubber. It is perfectly stable and may be stored indefinitely without decomposition. It does not decompose at milling and calendering temperatures and will not absorb moisture from the air. Antox is non-poisonous and does not give off poisonous or obnoxious vapors during mixing or calendering. From 1 to 3 per cent is used on the rubber content according as the stock is compounded heavily or not.

GERMAN EXPORTS OF AUTOMOBILE TIRES AND TUBES NUMbered in 1925 174,897 and 219,252 respectively, according to compilations by the Department of Commerce. Argentina represented easily the leading market, taking 32,556 casings and 62,967 inner tubes, while other countries taking over 10,000 casings were listed in order of importance as Denmark, Switzerland, Dutch East Indies, United Kingdom, British India, and Austria.

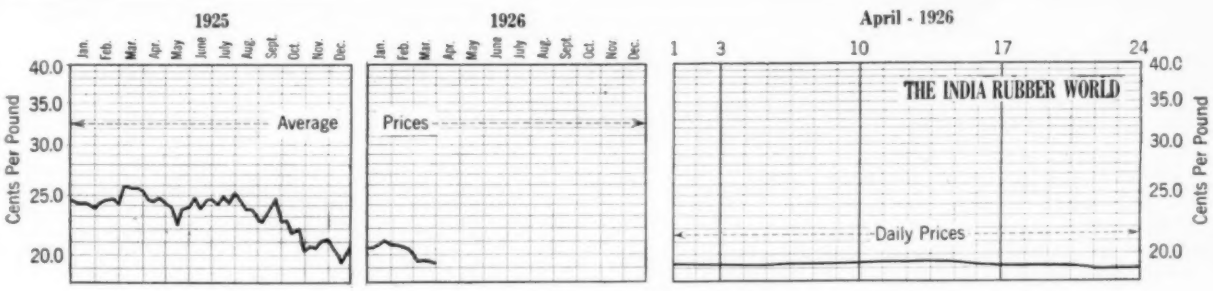
"NU-GUM" RUBBER

"Nu-Gum" is the trade name of a reclaim produced from No. 1 floating inner tubes. It contains no oils or compounding ingredients and has a gravity 98 to 100. It is specially suited for frictions and similar plastic stocks.

ACCELERATOR Z-88

A new organic accelerator of far-reaching practical importance has been developed and is offered to the rubber industry under the trade designation of Z-88. This material occupies a unique place in the list of 450 or more organic substances known to aid vulcanization and improve the product. The speed of ultra-accelerators, due to their low critical temperature and extreme activity makes them difficult to use with present day methods and equipment. This situation calls for an "accelerator with its wings clipped" and has been met by the production of Z-88 which is classed as a semi-accelerator rather than as an ultra-accelerator.

In point of activity Z-88 comes between A-19 and the ultra groups. Its critical temperature is low enough to permit comparatively short cures and its critical time is long enough so that by observing a few reasonable precautions it may be handled successfully in the factory.



Ratio Graph of New York Daily Prices of Spot Middling Upland Cotton

The Market for Cotton and Other Fabrics

New York

AMERICAN COTTON. The April market for spot middling cotton showed very little activity. Quotations have varied but little from day to day. The price April 1 was 19.35 cents. A decline of 15 points marked the opening after Easter followed by a gradual rise totaling 25 points on April 12 when the price was 19.45 cents. From this there was a steady decline to 18.90 cents on April 26.

The gloomy and stagnant conditions that have characterized the cotton market for the past 3 months are attributed to the late crop start. Traders are waiting for a better line on this feature to settle the main question of crop prospects. Late in April sentiment was pessimistic fearing the possibilities of a third bumper crop in succession.

Opposed to this view is the fact that planting has been delayed through the cotton belt with reports that 90 per cent of Texas must be planted after May 1. In the central belt much replanting must be done owing to recent rains and cold weather.

EGYPTIAN COTTON. There has been very little change in the long staple situation during the past month. Prices were maintained with remarkable firmness in spite of the large supply and small demand. It would seem that everyone is waiting to ascertain how the new crop will start and what acreage is to be devoted to staples. Any wide fluctuations are, therefore, not to be expected until further information on these points is available. At present the acreage forecast is the same as that of last year's crop.

Cotton Fabrics

DUCKS, DRILLS AND OSNABURGS. These goods have been in limited demand the past month. The market for mechanical ducks has recently shown some activity and inquiries have become more numerous.

RAINCOAT FABRICS. Prices remained unchanged the past month and business has been very quiet in the trade with exception of a good demand for high color Scotch plaids printed on a fine yarn fabric.

Rayon fabrics are becoming popular for raincoats. Rubberizing experiments on woven rayon goods have been very successful and resulted in the production of inexpensive, practical garments of great beauty.

SHEETINGS. Business has been fair in amount on medium and light weights, also on 40 inch 3.60 sheeting chiefly for nearby delivery. Buying is largely from hand-to-mouth. Prices are fairly firm.

TIRE FABRICS. Tire fabric mills have been working continuously on contracts placed early in the year. Not much business materialized previous to the middle of the month. The market for the month was generally quiet with nominal and unchanged quotations. A small number of filling in orders were placed. The general curtailment of tire production effective in most tire plants reacted to cause deferred deliveries on tire fabrics until after the middle of the month, when tire companies requested resumption of deliveries. Large manufacturers are reported making commitments for tire fabric only 2 or 3 months in advance, others less than that. Small concerns are placing orders on a hand-to-mouth basis covering current weekly or fortnightly needs. This is a natural reaction due to the influence of the backwardness of the motoring season on tire dealer and consumer demand.

New York Quotations

April 26, 1926

Drills

38-inch 2.00-yard	yard	$0.18½@
40-inch 3.47-yard		.10⅞@
52-inch 1.90-yard		.20 @
60-inch 1.52-yard		.25 @

Ducks

38-inch 2.00-yard	yard	.18¾@
40-inch 1.47-yard		.25½@
72-inch 16.66-ounce		.41½@
72-inch 17.21-ounce		.43½@
MECHANICAL		
Hose and belting	pound	.35 @
Specials		.39 @
TENNIS		
52-inch 1.35-yard	yard	.30 @

Hollands

DEAD FINISH		
Standard, 37-inch	yard	.19½@
42-inch		.23½@
RED SEAL		
36-inch		.17 @
40-inch		.18 @
50-inch		.29 @
FLAT FINISH		
Imperial, 36-inch		.15½@
40-inch		.17½@

Osnaburgs

40-inch 2.35-yard	yard	.15¾@
40-inch 2.48-yard		.14⅞@
40-inch 3.00-yard		.12½@
37-inch 2.42-yard		.15⅜@

Raincoat Fabrics

COTTON		
Bombazine 64 x 60	yard	.12½@
Bombazine 60 x 48		.11½@
Plaids 60 x 48		.12½@
Plaids 56 x 44		.11¾@
Surface prints 60 x 48		.12½@
Surface prints 64 x 60		.13½@

Sheetings, 40-inch

40 x 48, 2.50-yard	yard	.13¾@	
48 x 48, 2.50-yard		.13½@	
48 x 48, 2.85-yard		.12 @	.12¼
64 x 68, 3.15-yard		.13¼@	.13½
56 x 60, 3.60-yard		.10¾@	.11
48 x 44 3.75-yard		.09⅜@	.09½

Sheetings, 36-inch

48 x 48, 5.00-yard	yard	$0.07 @
40 x 40, 6.15-yard		.06 @

Tire Fabrics

SQUARE WOVEN 17¼-ounce		
Egyptian, karded	pound	.50 @
Peeler, karded		.45 @
CORD 23/5/3		
Egyptian, combed	pound	.55 @
Egyptian, karded		.50 @
Peeler, combed, 1 1/32-in.		@
Peeler karded, 1 1/32-in.		.45 @
CORD 23/4/3		
Peeler, karded	pound	.46½@
CORD 13/3/3		
Peeler, karded	pound	.42 @
LENO BREAKER		
8-oz. Peeler, karded	pound	.43 @
10-oz. Peeler, karded		.43 @
CHAFER		
8.25-oz. Peeler, karded (2 ply)	pound	@
9.5-oz. Peeler, karded (4-ply)		.56 @
12-oz. Peeler, karded		.52 @
14-oz. Peeler, karded		.45 @

The Cotton Outlook

PROBLEMS facing the cotton industry have come up for serious discussion recently in the yearly sessions of both northern and southern organizations. At the annual convention of the American Cotton Shippers' Association held April 9-10 at the Biltmore Hotel, Atlanta, Georgia, the association went on record as opposing the issuance of government semi-monthly condition and crop estimates, the members favoring a monthly report. Disapproval was also evident regarding the Caraway bill, aimed to abolish future trading. A resolution endorsed in principle had reference to a universal standard of staples, the members of the association agreeing to cooperate with the United States Department of Agriculture and with European and other divisions working toward that end. W. J. Neale, president of the cotton shippers' organization, also urged the protection of farmers in any changes made in the marketing of cotton. The theme at a recent conference of the members of the South Carolina Cotton Manufacturers' Association was the possibility of a drastic curtailment in production of cotton goods by southern mills as a result of the future market selling below the spot market.

Especial attention has however been given by the cotton industry to the semi-annual meeting held in Boston during the second week of April by the National Association of Cotton Manufacturers. A more optimistic feeling seemed to prevail at these sessions, where matters of importance to the industry were reviewed. At the association dinner held April 16 at the Copley-Plaza Hotel, William B. MacColl, president of the organization, said in part:

The cotton industry has confidence in its ability to work out its own salvation, if unhampered by burdensome taxation and restrictive state legislation. The future offers the same opportunity for success as the past.

The volume of domestic consumption has not reached the point where it will absorb the full product of our textile plants operating on a full-time basis, not to mention overtime or night running. If we intend to keep down manufacturing costs it is, needless to say, essential to run to capacity. There are two alternatives which might be considered—one, to wait for an increased demand from the domestic market, or, secondly, to thoroughly investigate the possibilities of increasing our exports. . . .

However optimistic we may be concerning the future, we are, nevertheless, facing a situation in our New England cotton industry which cannot continue appreciably longer without causing very grave consequences. The condition boils itself down to the old axiom, "The survival of the fittest." Mills which have kept pace with the times through modern methods of management and the installation of up-to-date plant equipment need have no fear for the future, but those which have not or cannot get into this position are undoubtedly in a difficult predicament.

The Question of Acreage

Authorities differ widely in their forecasts regarding American cotton acreage for the coming season, particularly as the compilations in this respect of the Census Bureau and the Department of Agriculture continue so greatly to vary. The Fairchild statement, with its estimate of 45,085,000 acres, reminds the industry that present figures are subject to change by possible influences not now apparent, such as weather conditions and the trend of prices. *The Daily News Record* considers that in any such compilation there is more or less guesswork, and calls attention to the fact that the American cotton acreage "cycled" from 36,000,000 in 1918 to 30,500,000 in 1921, and to 46,000,000 in 1925. At a recent conference in Washington, D. C., attended by members of the Federal Farm Loan Board as well as representatives of Southern banking interests, another bumper cotton crop for 1926 was predicted, as a result of the refusal by growers to decrease their acreage. The commissioner of the board deplored this condition of affairs, saying:

Each farmer or community is perfectly well aware of the fact that a 17,000,000-bale crop this year spells calamity for the south and they believe in the need for reducing acreage. However, they each want the other fellow to do the reducing so that they can reap the benefit.

World Stocks of Cotton

Statistics prepared by the National Bank of Commerce, New York City, show that the consumption of raw cotton throughout the world is lagging, and that beginning last November the American exports of this commodity began to lose ground in comparison with those of the 1924-25 season. Thus far this season such exports are said to be more than 400,000 bales less than in 1924-25, while there has been since the middle of January a decline of nearly $11 a bale in the spot price. Stating that foreign importers are apparently reversing their attitude toward American cotton, the report continues:

The conclusion has been reached that the world carryover of American cotton, stated at 3,300,000 bales last July, would this July reach 4,600,000 bales. Now that more information of the doings of the first half-season is available, it would seem that mill consumption will hardly be more than 14,000,000 bales and that there will be a larger addition to stocks than was provided for in these figures.

At the same time it must be remembered that prices of cotton now are lower than they have been at this season in several years and if there is a further price decline between now and the time the bulk of the new crop goes into the ground the effect might appear in the acreage planted. Another large acreage would undoubtedly have a bearish influence on the market for the time being. Ultimately, of course, the weather will be the determining influence, and about that it is idle to speculate.

Another estimate as to cotton stocks throughout the world is that of the Merchants National Bank, Boston, Massachusetts, which places the figure at 22,033,000 478-pound bales, against 19,010,000 bales. These figures are for the middle of the current cotton season, or January 31, 1926, and are said to cover cotton at all points, including cotton on plantations, in transit, at markets, in mills, and the estimated unpicked portions of the late maturing crops. The report continues:

The world consumed during the first half of the season 12,038,000 bales, against 11,118,000 in the corresponding period last season. If consumption in the second half should be equal to that in the first half, the carryover at the end of the season would be just about 10,000,000 bales, which would compare with 7,148,000 last season.

A carryover of 10,000,000 bales would be the largest since that of the summer of 1922, when the carryover was exactly that amount, according to the bank. It would be very much less, however, than the abnormal accumulation of cotton in the summer of 1921, following the big crop and business stagnation of the previous season, when the world's total stock was 14,765,000 bales of cotton.

The Daily News Record estimates the carryover at 8,930,000 bales, and figures the world supply of American cotton as being 36 per cent larger than that of last year.

Increase in American Exports of Raw Cotton

A commentary, however, on the figures quoted above is evident in reports from the Department of Commerce of American exports in 1925 of raw cotton totaling 4,384,160,000 pounds, as compared with 3,482,584,000 pounds for the year previous, or a gain of 25.9 per cent. Among the 100 chief commodities listed, American shipments to foreign countries of raw cotton ranked first in value, or $1,059,751,000 for 1925 as against $950,581,000 in 1924.

REPORT OF RIMS INSPECTED AND APPROVED BY THE TIRE AND RIM ASSOCIATION OF AMERICA, INC.

Rim Size	March, 1926 Number	March, 1926 Per Cent	Three Months, 1926 Number	Three Months, 1926 Per Cent
Motorcycle Rims				
24 x 3	7,613	0.3	15,424	0.2
26 x 3	†13,308	0.5	25,514	0.4
28 x 3	417	0.0	2,140	...
Clincher Rims				
30 x 3	507	0.0	1,244	0.0
30 x 3½	415,880	16.8	1,105,019	16.7
31 x 4	8,497	0.3	13,046	0.2
Balloon Rims				
27 x 3½	.....	...	.....	...
28 x 3½*	921,659	37.3	2,497,749	37.8
29 x 3½*	.....	...	.....	...
28 x 4*	267,292	10.8	675,254	10.2
29 x 4*	322,247	13.2	883,806	13.4
30 x 4*	.....	...	2,087	0.0
29 x 4½*	71,818	2.9	146,099	2.2
30 x 4½*	178,028	7.2	525,959	7.9
31 x 4½*	2,606	0.1	5,486	0.1
30 x 5*	30,506	1.2	76,846	1.2
31 x 5*	35,913	1.5	126,611	1.9
33 x 6*	15,699	0.6	36,774	0.6
High Pressure Rims				
30 x 3½	13,197	0.5	38,813	0.6
32 x 3½	.....	...	2,050	0.0
31 x 4	.....	...	4,162	0.1
32 x 4	13,879	0.6	47,161	0.7
33 x 4	2,466	0.1	2,466	0.0
34 x 4	.....	...	.....	...
32 x 4½	36,821	1.5	120,965	1.8
33 x 4½	496	0.0	496	0.0
34 x 4½	2,628	0.1	4,308	0.1
Truck 20"				
30 x 5	69,328	2.9	143,761	2.2
32 x 6	20,513	0.9	61,192	0.9
34 x 7	3,836	0.1	9,002	0.2
36 x 8	1,567	0.1	3,082	0.0
40 x 10	80	0.0	80	0.0
Truck 24"				
34 x 5	2,831	0.1	9,362	0.1
36 x 6	7,642	0.3	25,355	0.4
38 x 7	3,019	0.1	5,961	0.1
40 x 8	1,016	0.0	2,739	0.0
44 x 10	91	0.0	91	0.0
Totals	2,471,400	100.0	6,620,104	100.0

	March, 1926 Per Cent		Three Months, 1926 Per Cent
Motorcycle	0.8	Motorcycle	0.6
Clincher	17.1	Clincher	16.9
Balloon	74.8	Balloon	75.3
High Pressure	2.8	High Pressure	3.3
Truck—20"	4.0	Truck—20"	3.3
Truck—24"	0.5	Truck—24"	0.6

† Of the 13,308—26 x 3 motorcycle rims, 2,490 are 3" auto section. All others are regular "CC".
* Balloon tires.

RUBBER RESTRICTION MEASURES

Under present laws, and dating from February 1, 1926, crude rubber exports permitted are 100 per cent of "standard production," for 1925-1926, being estimated for Malaya at 301,002 tons, this including the islands of Singapore and Penang, while Ceylon's production is 68,639 tons, a total of 369,641 tons.

Restriction regulations permit a 10 per cent quarterly increase should the price of rubber average 1*s* 6*d* per pound or over, while a 5 per cent increase is allowed should the price average 1*s* 3*d* or under 1*s* 6*d* a pound. No decrease takes place in the export rate unless the price averages under 1*s* 3*d* a pound. Should rubber average between 1*s* 0*d* and under 1*s* 3*d* a pound for a quarter, the following quarter's percentage allowed falls 5 per cent. Should rubber average under 1*s* 0*d* a pound for a quarter the following quarter's percentage allowed falls to 55 per cent of standard production. The following are the fixed dates for the quarters mentioned: November 1 to January 31, February 1 to April 30, May 1 to July 31, and August 1 to October 31.

WOOD TANKS WITH VULCANIZED RUBBER LININGS

The Hauser-Stander Tank Co., Cincinnati, Ohio, announces that, in addition to its manufacture of rubber-lined storage tanks for holding muriatic and phosphoric acids, the company is now making a specialty of lining wood tanks with vulcanized rubber, such tanks to be used in the transportation of the acids mentioned. S. J. Hauser is secretary and manager.

Metal Market Review

New York

Throughout April comparative quietness has characterized the various metal markets, while the difficulties in England in connection with the coal situation have sympathetically and unfavorably affected the markets of the United States. Tin, lead, and zinc have all shown declines in prices, copper however being firmer, chiefly because of its strong statistical position, and a better foreign demand.

ALUMINUM. The market shows no change, aluminum being the only non-ferrous metal which has not recently moved downward in price. A good demand from the automotive industry continues.

ANTIMONY. The market remains firm but quiet. Prices of Chinese metal for spot and early delivery were quoted during the last of April at 17.50 to 17.75 cents, New York, duty paid.

COPPER. There is said to be a good steady business in copper, with few spectacular features. Stocks have shown a decline of more than 11,000 tons, while there is a better demand in foreign markets, especially in England, France, and Germany. According to a survey just completed by the Copper & Brass Research Association, the amount of copper used in the radio industry has more than doubled in the past two years and is now approximating 10,000,000 pounds annually.

LEAD. During the last half of April there was a good consumption of this metal, the industry showing more healthy conditions. On April 22 the independent producers were quoting 7.50 to 7.60 cents, St. Louis, with the New York quotation at 7.85 cents.

STEEL. *The Iron Age* estimates the steel ingot output for March at 4,491,689 tons, the highest figure yet reached by the industry, the nearest approach to it being that for May, 1923, when the total production for the month was 4,216,355 tons. Some recession from these record estimates is to be expected, although there is a better relation between production and consumption than existed a year ago at this time.

TIN. There is a great scarcity of spot tin, and sales of this metal are moderate. Consumers are believed to be fully covered for April and fairly so for May.

ZINC. During the middle of April there was an unexpected drop in the price of this metal, the figure at 7 cents a pound, East St. Louis, representing the low water mark of the year on open quotations. It is said that, because of price uncertainties, the industry is at present in a precarious condition, notwithstanding the tremendous volume of business being done in the United States.

Basic Metals

APRIL 24, 1926

	Cents per pound	
Aluminum, virgin, 98@99 per cent.	27.00	@
Antimony	17.25	@17.50
Copper—Lake, spot	14.00	@14.125
Electrolytic, spot	14.00	@
Castings, refinery	13.375	@
Lead, spot, New York	7.75	@ 7.85
Lead, spot, East St. Louis	7.55	@ 7.60
Nickel, ingot, pound	35.00	@
Tin, spot	64.00	@
Zinc, spot, New York	7.25	@ 7.30
Zinc, spot, East St. Louis	6.90	@ 6.95

Steel Wire

BASE PRICE* ON NO. 9 GAGE AND COARSER

	Cents per pound	
Bright basic	4.25	@
Annealed soft	4.50	@
Galvanized annealed	5.15	@
Coppered basic	5.15	@
Tinned soft Bessemer	6.15	@

* Regular extras for lighter gage.

Copper Wire

BASE PRICE F. O. B. FACTORY

	Cents per pound	
Bare copper wire	16.00	@
No. 6 B. & S. gage	16.00	@
No. 8 B. & S. gage	16.00	@
No. 14 B. & S.	17.00	@

United Kingdom Rubber Statistics

Imports

UNMANUFACTURED	February, 1925		Two Months Ended February, 1926	
Crude rubber From—	Pounds	Value	Pounds	Value
Straits Settlements	8,615,000	£1,178,822	20,189,300	£3,276,658
Federated Malay States	2,335,900	334,946	6,161,000	1,001,470
British India	1,184,900	181,441	2,456,600	412,178
Ceylon and Dependencies	3,254,900	427,544	6,844,700	1,082,178
Other Dutch possessions in Indian Seas	631,300	91,640	1,710,300	277,404
Dutch East Indies (except other Dutch possessions in Indian Seas)	1,738,800	227,805	3,783,100	583,848
Other countries in East Indies and Pacific, not elsewhere specified	156,700	21,413	332,900	49,933
Brazil	1,161,700	164,606	2,208,000	354,599
Peru	.....	.....	.....	.....
South and Central America (except Brazil and Peru)	3,600	460	7,200	1,015
West Africa				
French West Africa	281,800	24,522	849,400	96,518
Gold Coast	235,900	17,341	279,800	23,864
Other parts of West Africa	260,100	27,873	531,300	63,769
East Africa, including Madagascar	188,800	23,055	318,100	41,425
Other countries	104,300	12,534	309,900	48,848
Totals	20,203,700	£2,734,002	45,981,600	£7,313,707
Waste and reclaimed rubber	579,100	£13,255	1,591,900	£31,230
Gutta percha and balata	1,117,100	154,270	1,906,500	276,425
Rubber substitutes	.....	.....	13,500	487
Totals	1,696,200	£167,525	3,511,900	£308,142
MANUFACTURED				
Boots and shoes....*doz. pairs*	26,666	£55,783	61,081	£126,073
Tires and tubes				
Pneumatic				
Outer covers	.....	532,129	.....	823,422
Inner tubes	.....	48,402	.....	84,474
Solid tires	.....	19,655	.....	45,521
Other rubber manufactures	.....	129,591	.....	273,187
Totals	.....	£785,560	.....	£1,352,677

Exports

UNMANUFACTURED RUBBER				
Waste and reclaimed	2,177,100	£2,730,700	50,375	£69,075
Rubber substitutes	110,500	251,200	2,889	6,179
Totals	2,287,600	£2,981,900	53,264	£75,254
MANUFACTURED				
Boots and shoes....*doz. pairs*	16,009	£27,992	32,463	£55,234
Tires and tubes				
Pneumatic				
Outer covers	.....	271,681	.....	513,931
Inner tubes	.....	53,031	.....	109,925
Solid tires	.....	34,344	.....	76,369
Other rubber manufactures	.....	239,857	.....	467,146
Totals	.....	£626,905	.....	£1,220,605

Exports—Colonial and Foreign

UNMANUFACTURED	February, 1926		Two Months Ended February, 1926	
Crude rubber To	Pounds	Value	Pounds	Value
Russia	1,439,400	£265,119	2,182,700	£397,979
Sweden, Norway and Denmark	241,700	37,963	314,200	50,649
Germany	430,400	62,462	1,387,600	238,712
Belgium	166,600	28,875	293,000	52,225
France	1,724,000	287,917	3,538,400	649,042
Spain	155,900	27,346	226,100	39,858
Italy	684,400	114,822	1,637,600	310,101
Other European countries	79,300	12,837	173,300	32,007
United States	8,223,600	1,332,665	13,661,100	2,394,767
Canada	2,200	560	29,200	5,396
Other countries	79,800	15,433	138,000	27,005
Totals	13,227,300	£2,185,999	23,581,200	£4,197,741
Waste and reclaimed rubber	28,000	£895	42,600	£1,313
Gutta percha and balata	26,100	4,062	59,500	9,206
Rubber substitutes	.....	.....	.....	.....
Totals	54,100	£4,957	102,100	£10,519
MANUFACTURED				
Boots and shoes....*doz pairs*	369	£1,160	768	£3,106
Tires and tubes				
Pneumatic				
Outer covers	.....	20,003	.....	49,985
Inner tubes	.....	3,234	.....	7,812
Solid tires	.....	559	.....	1,875
Other rubber manufactures	.....	4,467	.....	9,595
Totals	.....	£29,423	.....	£72,373

Rubber Statistics for the Dominion of Canada

Imports of Crude and Manufactured Rubber

UNMANUFACTURED	January, 1926		Ten Months Ended January, 1926	
	Pounds	Value	Pounds	Value
Rubber, gutta percha, etc.				
From United Kingdom	200	$241	2,475,588	$1,284,413
United States	4,289,305	3,471,638	29,532,240	20,842,764
Straits Settlements	349,705	322,468	4,636,552	2,743,193
Dutch East Indies	243,463	213,421	1,120,741	824,870
France	18,539	5,539	51,008	26,003
Other countries	.....	.....	161,383	90,817
Totals	4,901,212	$4,013,307	37,977,512	$25,812,060
Rubber, recovered	746,213	$110,373	6,474,136	$807,977
Rubber, powdered and rubber or gutta percha scrap	446,687	38,870	4,360,321	266,532
Balata	.....	.....	1,790	1,505
Rubber substitutes	88,447	17,780	623,132	96,115
Totals	1,281,347	$167,023	11,459,379	$1,172,129
PARTLY MANUFACTURED				
Hard rubber sheets and rods	40,917	$31,256	246,405	$177,911
Hard rubber tubes	.....	.....	.....	1,015
Rubber thread not covered	6,014	9,196	118,762	130,718
Totals	46,931	$40,452	365,167	$309,644
MANUFACTURED				
Belting	.....	$22,787	.....	$194,799
Hose	.....	7,756	.....	137,268
Packing	.....	2,486	.....	37,427
Boots and shoes.....*pairs*	10,769	17,758	52,468	84,108
Clothing, including waterproofed	.....	13,815	.....	143,580
Gloves	.....	1,221	.....	13,665
Hot water bottles	.....	970	.....	17,966
Tires, solid.....*number*	72	2,478	944	35,105
Tires, pneumatic.....*number*	1,974	23,345	24,701	389,255
Inner tubes.....*number*	1,813	3,424	17,103	47,347
Elastic, round or flat	.....	15,386	.....	177,115
Mats and matting	.....	1,030	.....	17,271
Cement	.....	3,792	.....	44,645
Golf balls.....*dozen*	33	75	26,238	109,539
Heels, rubber.....*pairs*	17,869	913	136,932	9,670
Other rubber manufactures	.....	104,699	.....	1,231,404
Totals	.....	$221,935	.....	$2,690,164
Totals, rubber imports	.....	$4,442,717	.....	$29,983,997

Exports of Domestic and Foreign Rubber Goods

UNMANUFACTURED	January, 1926		Ten Months Ended January, 1926	
	Produce of Canada Value	Re-exports of Foreign Goods Value	Produce of Canada Value	Re-exports of Foreign Goods Value
Crude and waste rubber	$50,482	.....	$361,458	.....
Totals	$50,482	.....	$361,458	.....
MANUFACTURED				
Belting	$40,744	.....	$511,984	.....
Canvas shoes with rubber soles	249,740	.....	2,118,696	.....
Boots and shoes	160,516	.....	1,671,002	.....
Clothing, including waterproofed	1,627	.....	37,173	.....
Hose	16,644	.....	192,237	.....
Tires, casings	916,396	.....	8,485,271	.....
Inner tubes	170,093	.....	1,515,415	.....
Solid	18,299	.....	265,866	.....
Other rubber manufacturers	39,737	$23,102	379,857	$130,822
Totals	$1,613,796	$23,102	$15,117,501	$130,822
Totals, rubber exports	$1,664,278	$23,102	$15,478,959	$130,822

Landings, Deliveries and Stocks in London and Liverpool as Returned by the Warehouses and Wharves During the Month of February, 1926

	Landed for February	Delivered for February	Stocks, February 28		
LONDON:	Tons	Tons	1926 Tons	1925 Tons	1924 Tons
Plantation	6,962	6,964	9,863	23,248	56,391
Other grades	36	17	92	84	98
LIVERPOOL:					
Plantation	†219	†387	†650	†2,112	†5,221
Pará and Peruvian	218	189	317	146	659
Other grades	....	3	8	46	210
Total tons London and Liverpool	7,435	7,560	10,930	25,636	62,579

†Official returns from the six recognized public warehouses.

Official India Rubber Statistics for the United States

Imports of Crude and Manufactured Rubber

	February, 1926		Eight Months Ended February, 1926	
UNMANUFACTURED—*Free*	Pounds	Value	Pounds	Value
Crude rubber	73,618,049	$58,733,370	627,733,759	$412,838,774
Balata	83,782	34,728	1,074,054	519,583
Jelutong or Pontianak	1,313,286	256,637	8,822,133	1,125,379
Gutta percha	205,193	52,609	2,594,016	501,044
Guayule	877,999	299,172	6,620,993	1,684,322
Rubber scrap	4,347,661	216,101	26,502,484	1,029,083
Totals	80,445,970	$59,592,617	673,347,439	$417,698,183
Chicle *dutiable*	1,390,242	$758,412	7,691,979	$3,812,138
MANUFACTURED—*dutiable*				
Rubber belting	75,257	$47,609	477,777	348,672
Rubber tires	269	5,022	[1]1,060	[1]18,071
Other rubber manufactures of substitutes for rubber	.....	118,935	.....	985,125
Totals	75,526	$171,566	478,837	$1,351,868

Exports of Foreign Merchandise

RUBBER AND MANUFACTURES				
Crude rubber	3,203,980	$2,280,168	25,366,025	$19,117,452
Balata	96,135	41,889	332,042	178,028
Gutta percha and rubber substitutes and scrap	33,699	4,718	46,386	12,218
Rubber manufactures	.....	22,568	.....	169,537
Totals	3,333,814	$2,349,343	25,744,453	$19,477,235
Chicle	198	$145	43,665	$18,846

Exports of Domestic Merchandise

MANUFACTURED				
India rubber				
Reclaimed	807,366	$132,997	7,434,245	$911,367
Scrap and old	1,597,341	106,750	17,534,686	1,190,913
Footwear				
Boots *pairs*	28,216	85,355	671,983	1,570,675
Shoes *pairs*	67,879	59,955	915,731	801,029
Canvas shoes with rubber soles *pairs*	374,398	320,168	3,016,941	2,211,718
Rubber water bottles and fountain syringes *number*	11,842	9,569	207,531	154,168
Rubber gloves *doz. prs.*	5,150	19,273	[1]8,868	[1]33,693
Other druggists' rubber sundries	.....	50,138	.....	789,586
Bathing caps *dozen*	33,336	58,594	85,938	172,426
Hard rubber goods				
Electrical hard rubber goods	73,679	30,026	766,355	262,766
Other hard rubber goods	.....	28,273	.....	333,162
Tires				
Casings, automobile *number*	133,993	2,136,783	1,081,887	15,698,488
Tubes, automobile *number*	96,848	280,015	935,500	2,261,834
Other casings and tubes *number*	6,575	25,786	53,183	172,016
Solid tires for automobiles and motor trucks *number*	9,010	318,972	76,194	2,418,055
Others	190,344	44,931	1,491,280	406,292
Tire accessories	.....	110,860	.....	860,429
Rubber and friction tape	49,334	15,713	391,772	[1]31,417
Belting	306,706	194,816	2,669,925	1,671,022
Hose	459,271	183,471	3,654,082	1,479,519
Packing	187,787	89,962	1,453,735	682,957
Soles and heels	323,472	110,684	2,515,455	802,559
Thread	171,187	225,738	1,295,047	1,637,226
Rubber bands and erasers	36,216	28,397	[1]76,724	[1]61,817
Other rubber manufactures	.....	173,558	.....	1,414,965
Totals	.....	$4,840,784	.....	$38,030,099
Rubber toys, balls and balloons	.....	$70,620	.....	$744,247

[1] Beginning Jan. 1, 1926.

Imports of Crude Rubber Into the United States by Customs Districts

	*February, 1926		Two Months Ended *February, 1926	
	Pounds	Value	Pounds	Value
Massachusetts	4,006,417	$3,265,690	9,513,439	$7,707,629
Buffalo	.....	.....	30,000	12,600
New York	66,955,101	53,258,782	154,092,556	119,482,771
Philadelphia	.....	.....	.....	.....
Maryland	.....	.....	.....	.....
New Orleans	100	37	797	211
Los Angeles	2,145,281	1,797,933	3,980,179	3,254,766
San Francisco	29,550	27,377	258,534	208,201
Colorado	168,000	145,636	168,000	145,636
Oregon	22,400	20,915	22,400	29,915
Washington	291,200	217,000	537,600	428,792
Totals	73,618,049	$58,733,370	168,065,905	$131,270,521

* Including Latex Dry Rubber Content.

Plantation Rubber Exports from Dutch East Indies

Java and Madura

	November		Eleven Months Ended November	
To—	1924 Kilos	1925 Kilos	1924 Kilos	1925 Kilos
Holland	81,000	233,000	2,125,000	1,854,000
Holland for order	110,000	168,000	980,000	2,098,000
Great Britain	683,000	1,162,000	6,269,000	7,009,000
Great Britain for order	17,000	59,000	81,000	448,000
Germany and for order	42,000	47,000	360,000	1,367,000
France and for order	2,000	116,000	253,000	693,000
Belgium and for order	.....	8,000	25,000	191,000
Italy and for order	24,000	113,000	338,000	665,000
Sweden	.....	.....	.....	3,000
United States and for order	1,933,000	2,667,000	24,835,000	26,191,000
South America	.....	.....	.....	202,000
Singapore	65,000	149,000	2,386,000	1,539,000
Hongkong	.....	28,000	27,000	31,000
Japan	54,000	3,000	751,000	71,000
Australia	4,000	146,000	247,000	808,000
Other countries	.....	.....	4,000	3,000
Totals	3,015,000	4,899,000	38,681,000	43,173,000
Ports of Origin:				
Tandjong-Priok	1,208,000	1,955,000	14,915,000	18,219,000
Cheribon	17,000	5,000	73,000	46,000
Tekalongan	.....	.....	1,000	14,000
Samarang	219,000	255,000	2,781,000	3,093,000
Sourabaya	998,000	1,739,000	15,307,000	15,458,000
Pasuruan	182,000	145,000	1,227,000	1,097,000
Probolinggo	198,000	72,000	1,205,000	871,000
Panarukan	114,000	386,000	1,334,000	1,944,000
Banjuwangi	45,000	135,000	853,000	1,010,000
Tjilatjap	34,000	206,000	985,000	1,417,000

Belawan

	November		Eleven Months Ended November	
To—	1924 Kilos	1925 Kilos	1924 Kilos	1925 Kilos
Holland	113,000	129,000	1,574,000	1,876,000
Great Britain	887,000	798,000	4,900,000	6,959,000
Germany	118,000	30,000	411,000	495,000
France	12,000	68,000	248,000	526,000
Italy	.....	63,000	222,000	409,000
Belgium	.....	.....	27,000	14,000
United States	2,854,000	3,446,000	27,609,000	20,867,000
Canada	.....	.....	.....	9,000
South Africa	.....	.....	.....	14,000
Singapore	50,000	94,000	852,000	954,000
Penang	114,000	190,000	957,000	1,939,000
Hongkong	.....	.....	.....	10,000
Australia	4,000	15,000	24,000	110,000
Other countries	3,000	.....	130,000	.....
Totals	4,155,000	4,833,000	36,954,000	34,182,000

United States Crude and Waste Rubber Imports for 1926 (By Months)

	Plantations	Parás	Africans	Centrals	Guayule	Manicobas and Matto Grosso	Total 1926	Total 1925	Balata	Miscellaneous	Waste
January *tons*	36,372	856	791	515	153	10	38,697	29,960	94	607	1,227
February	31,832	1,548	227	250	204	6	34,067	23,456	19	728	729
March	40,177	1,426	334	256	482	2	42,677	33,914	30	1,264	324
Totals, 3 months, 1926 *tons*	108,381	3,830	1,352	1,021	839	18	115,441	.....	143	2,599	2,280
Totals, 3 months, 1925	81,287	4,098	734	583	621	9	.....	87,330	95	3,392	633

Compiled from statistics supplied by the Rubber Association of America, Inc.

Crude Rubber Arrivals at New York as Reported by Importers

Parás and Caucho

	Fine Cases	Medium Cases	Coarse Cases	Caucho Cases	Cametá Cases
MARCH 13. By "Hubert," Para.					
H. A. Astlett & Co., Inc.	127	....	9	204	....
MARCH 26. By "Thespia," Manaos.					
H. A. Astlett & Co., Inc.	143	10	....	22	....
General Rubber Co.	606	17	57	124	....
L. Littlejohn & Co., Inc.	666	10	278	550	....
Meyer & Brown, Inc. ....pkgs.	751	....	305	293	....
Poel & Kelly, Inc.	93	....	196	735	....
APRIL 3. By "Leighton," Brazil.					
H. A. Astlett & Co., Inc.	9	2	25	....	....
General Rubber Co.	91	3	....	....	....
Meyer & Brown, Inc. ....pkgs.	...	....	200	243	....
APRIL 10. By "Justin," Para.					
General Rubber Co.	547	30	227	210	....
L. Littlejohn & Co., Inc.	...	....	141	137	....
Meyer & Brown, Inc. ....pkgs.	225	2	163	....	....
Poel & Kelly, Inc.	220	....	145	57	....

Plantations

	Cases
MARCH 15. By "Ansonia," London.	
H. A. Astlett & Co., Inc.	259
General Rubber Co.	238
L. Littlejohn & Co., Inc.	157
Meyer & Brown, Inc. ....pkgs.	336
Poel & Kelly, Inc.	363
MARCH 15. By "American Trader," London.	
L. Littlejohn & Co., Inc.	170
Meyer & Brown, Inc. ....pkgs.	45
Poel & Kelly, Inc.	50
MARCH 16. By "Kyphissia," Hamburg.	
Raw Products Co.	131
MARCH 17. By "Cyclops," Far East.	
H. A. Astlett & Co., Inc.	2,369
Baird Rubber & Trading Co., Inc.	3,800
General Rubber Co.	9,041
Haldane Bierrie & Co.	450
Hood Rubber Co.	*96
L. Littlejohn & Co., Inc.	8,830
Meyer & Brown, Inc. ....pkgs.	3,189
Meyer & Brown, Inc. ....pkgs.	*433
H. Muehlstein & Co., Inc.	300
Poel & Kelly, Inc.	3,787
Poel & Kelly, Inc.	*150
Raw Products Co.	221
Charles T. Wilson Co., Inc.	813
MARCH 22. By "Bloemmerdijk," Rotterdam.	
Haldane Bierrie & Co., Inc.	131
Meyer & Brown, Inc. ....pkgs.	176
Raw Products Co.	74
Charles T. Wilson Co., Inc.	51
MARCH 23. By "Fairfield City," Far East.	
H. A. Astlett & Co., Inc.	930
Baird Rubber & Trading Co., Inc.	1,342
General Rubber Co.	5,907
Haldane Bierrie & Co., Inc.	96
L. Littlejohn & Co., Inc.	6,817
Meyer & Brown, Inc. ....pkgs.	2,272
Meyer & Brown, Inc. ....pkgs.	*50
H. Muehlstein & Co., Inc.	626
Poel & Kelly, Inc.	745
Raw Products Co.	146
Charles T. Wilson Co., Inc.	526
MARCH 24. By "Patrick Henry," Far East.	
H. A. Astlett & Co., Inc.	408
Poel & Kelly, Inc.	*107
MARCH 25. By "Arabic," Hamburg.	
H. Muehlstein & Co., Inc.	142
MARCH 25. By "Venice Maru," Far East.	
H. A. Astlett & Co., Inc.	221
Baird Rubber & Trading Co., Inc.	798
General Rubber Co.	4,934
Haldane Bierrie & Co., Inc.	99
L. Littlejohn & Co., Inc.	1,389
Meyer & Brown, Inc. ....pkgs.	984
H. Muehlstein & Co., Inc.	180
Poel & Kelly, Inc.	2,143
Raw Products Co.	100
Charles T. Wilson Co., Inc.	275
MARCH 26. By "Maidan," Far East.	
Baird Rubber & Trading Co., Inc.	660
L. Littlejohn & Co., Inc.	1,201
Meyer & Brown, Inc. ....pkgs.	807
H. Muehlstein & Co., Inc.	981
Poel & Kelly, Inc.	448
Raw Products Co.	400
Chas. T. Wilson Co., Inc.	305
MARCH 26. By "Pres. Adams," Far East.	
H. A. Astlett & Co., Inc.	570
Baird Rubber & Trading Co., Inc.	1,765
General Rubber Co.	2,474
Hood Rubber Co.	*777
L. Littlejohn & Co., Inc.	1,915
Meyer & Brown, Inc. ....pkgs.	2,675
H. Muehlstein & Co., Inc.	1,196
Poel & Kelly, Inc.	1,190
Raw Products Co.	319
Charles T. Wilson Co., Inc.	1,024
MARCH 27. By "Volendam," Rotterdam.	
General Rubber Co.	54
Haldane Bierrie & Co., Inc.	135
MARCH 29. By "Madoera," Far East.	
H. A. Astlett & Co., Inc.	1,161
Baird Rubber & Trading Co., Inc.	281
General Rubber Co.	6,546
L. Littlejohn & Co., Inc.	3,044
Meyer & Brown, Inc. ....pkgs.	921
Meyer & Brown, Inc. ....pkgs.	*273
Poel & Kelly, Inc.	1,454
Raw Products Co.	70
MARCH 30. By "American Merchant," London.	
Charles T. Wilson Co., Inc.	120
MARCH 30. By "Carinthia," Liverpool.	
Charles T. Wilson Co., Inc.	30
MARCH 30. By "Minnekahda," London.	
H. A. Astlett & Co., Inc.	295
Baird Rubber & Trading Co., Inc.	33
General Rubber Co.	2,956
L. Littlejohn & Co., Inc.	91
Meyer & Brown, Inc. ....pkgs.	30
Poel & Kelly, Inc.	154
Charles T. Wilson Co., Inc.	55
MARCH 30. By "Yangtsze," Far East.	
H. A. Astlett & Co., Inc.	610
Baird Rubber & Trading Co., Inc.	922
General Rubber Co.	7,346
L. Littlejohn & Co., Inc.	4,329
Meyer & Brown, Inc. ....pkgs.	*111
Meyer & Brown, Inc. ....pkgs.	4,154
H. Muehlstein & Co., Inc.	486
Poel & Kelly, Inc.	3,000
Poel & Kelly, Inc.	*56
Raw Products Co.	685
Charles T. Wilson Co., Inc.	255
MARCH 31. By "Thuringia," Hamburg.	
Meyer & Brown, Inc. ....pkgs.	105
APRIL 3. By "West Jestu," Far East.	
Poel & Kelly, Inc.	139
APRIL 5. By "Ala," Far East.	
Poel & Kelly, Inc.	50
APRIL 5. By "Ascania," Far East.	
Poel & Kelly, Inc.	410
APRIL 5. By "Minnewaska," London.	
General Rubber Co.	50
L. Littlejohn & Co., Inc.	371
Poel & Kelly, Inc.	347
Charles T. Wilson Co., Inc.	100
APRIL 6. By "Alaunia," Liverpool.	
Charles T. Wilson Co., Inc.	75
APRIL 6. By "American Shipper," London.	
Charles T. Wilson Co., Inc.	99
APRIL 6. By "Moorish Prince," Far East.	
H. A. Astlett & Co., Inc.	888
Baird Rubber & Trading Co., Inc.	1,942
General Rubber Co.	3,214
Haldane Bierrie & Co., Inc.	79
Hood Rubber Co.	*96
L. Littlejohn & Co., Inc.	6,161
Meyer & Brown ....pkgs.	2,203
Meyer & Brown, Inc. ....pkgs.	57
H. Muehlstein & Co., Inc.	911
Poel & Kelly, Inc.	2,187
Raw Products Co.	491
Charles T. Wilson Co., Inc.	1,343
APRIL 6. By "Vardulia," Far East.	
Poel & Kelly, Inc.	340
APRIL 7. By "Andijk," Rotterdam.	
L. Littlejohn & Co., Inc.	171
Meyer & Brown, Inc. ....pkgs.	34
APRIL 7. By "Chattanooga City," Far East.	
Baird Rubber & Trading Co., Inc.	56
General Rubber Co.	2,940
L. Littlejohn & Co., Inc.	616
Meyer & Brown, Inc. ....pkgs.	786
Poel & Kelly, Inc.	650
APRIL 7. By "Pres. Wilson," Far East.	
Meyer & Brown, Inc. ....pkgs.	†98
APRIL 9. By "Elveric," Far East.	
H. A. Astlett & Co., Inc.	48
L. Littlejohn & Co., Inc.	190
Meyer & Brown, Inc. ....pkgs.	144
APRIL 9. By "Pres. Garfield," Far East.	
Baird Rubber & Trading Co., Inc.	225
General Rubber Co.	2,604
Hood Rubber Co.	*933
L. Littlejohn & Co., Inc.	987
Meyer & Brown, Inc. ....pkgs.	1,390
H. Muehlstein & Co., Inc.	1,518
Poel & Kelly, Inc.	905
Raw Products Co.	484
Charles T. Wilson Co., Inc.	686
APRIL 12. By "American Farmer," London.	
General Rubber Co.	382
L. Littlejohn & Co., Inc.	32
APRIL 12. By "City of Bedford," Far East.	
Baird Rubber & Trading Co., Inc.	1,510
General Rubber Co.	1,743
Haldane Bierrie & Co., Inc.	983
Hood Rubber Co.	*255
L. Littlejohn & Co., Inc.	5,568
Meyer & Brown, Inc. ....pkgs.	3,513
Meyer & Brown, Inc. ....pkgs.	*400
H. Muehlstein & Co., Inc.	486
Poel & Kelly, Inc.	*550
Raw Products Co.	648
Charles T. Wilson Co., Inc.	916
APRIL 12. By "Dryden," Far East.	
Baird Rubber & Trading Co., Inc.	170
General Rubber Co.	1,411
L. Littlejohn & Co., Inc.	1,606
Meyer & Brown, Inc. ....pkgs.	663
Meyer & Brown, Inc. ....pkgs.	*56
H. Muehlstein & Co., Inc.	685
Charles T. Wilson Co., Inc.	144
APRIL 12. By "Malakuta," Far East.	
Baird Rubber & Trading Co., Inc.	730
Baird Rubber & Trading Co., Inc.	*132
APRIL 12. By "Nieuw Amsterdam," Rotterdam.	
Meyer & Brown, Inc. ....pkgs.	20
APRIL 14. By "Wales Maru," Far East.	
Baird Rubber & Trading Co., Inc.	212
General Rubber Co.	5,283
L. Littlejohn & Co., Inc.	257
Meyer & Brown, Inc. ....pkgs.	358
Meyer & Brown, Inc. ....pkgs.	*51
Charles T. Wilson Co., Inc.	1,047
APRIL 16. By "Euryades," Far East.	
Baird Rubber & Trading Co., Inc.	213
General Rubber Co.	8,484
Charles T. Wilson Co., Inc.	190
APRIL 16. By "West Prospect," Far East.	
Baird Rubber & Trading Co., Inc.	†627
Meyer & Brown, Inc. ....pkgs.	†550
Meyer & Brown, Inc. ....pkgs.	‡50
APRIL 17. By "Corby Hall," Far East.	
General Rubber Co.	6,220
APRIL 18. By "Steel Traveller," Far East.	
General Rubber Co.	4,549

Africans

	Cases
MARCH 22. By "Bloemersdijk," Rotterdam.	
L. Littlejohn & Co., Inc.	58
MARCH 22. By "Caronia," Liverpool.	
L. Littlejohn & Co., Inc.	178
MARCH 27. By "Aden Maru," Hamburg.	
L. Littlejohn & Co., Inc.	78
MARCH 27. By "Volendam," Rotterdam.	
L. Littlejohn & Co., Inc.	180
APRIL 3. By "Independence Hall," Antwerp.	
Baird Rubber & Trading Co., Inc. Bags	146
APRIL 12. By "Oregon Maru," Hamburg.	
L. Littlejohn & Co., Inc.	318
APRIL 14. By "Pennland," Antwerp.	
Meyer & Brown, Inc. ....pkgs.	433

Balata

APRIL 10. By "Justin," Brazil.	
General Rubber Co.	32

* Arrived at Boston.
† Arrived at Los Angeles.
‡ Arrived at Portland, Ore.
§ Arrived at Laredo, Texas.
** Mixed Grades.

Guayule

	Cases
MARCH 16. By "Canto," Mexico.	
Continental Rubber Co. of New York	800
Continental Rubber Co., of New York	$1,600
MARCH 23. By "Mundo," Mexico.	
Baird Rubber & Trading Co., Inc.	500
MARCH 24. By "Neuces," Mexico.	
Baird Rubber & Trading Co., Inc.	650
MARCH 28. By "Agiwistar," Mexico.	
Baird Rubber & Trading Co., Inc.	1,000
Continental Rubber Co. of New York	1,200
Continental Rubber Co. of New York	$1,600
MARCH 28. By "Concho," Mexico.	
Baird Rubber & Trading Co., Inc.	400
APRIL 1. By "Panuco," Mexico.	
Baird Rubber & Trading Co., Inc.	560
Continental Rubber Co. of New York	1,200
Continental Rubber Co. of New York	$1,200

Mangabeira

	Tons
MARCH 21. By "Castillan Prince," Bahia.	
Adolph Hirsch & Co., Inc.	33½

Maniçobas

	Cases
MARCH 25. By "Thespis," Brazil.	
General Rubber Co.	**2
APRIL 7. By "Haleakala," Brazil.	
J. H. Rossbach & Bros., Inc.	48 bales
APRIL 10. By "Justin," Brazil.	
General Rubber Co.	**10
APRIL 12. By "Corsican Frince," Brazil.	
J. H. Rossbach & Bros., Inc.	30 bales

Penang Sheet

	Cases
MARCH 29. By "Madoera," Far East.	
Baird Rubber & Trading Co., Inc.	27
APRIL 9. By "City of Bedford," Far East.	
Hood Rubber Co.	*47

Rubber Latex

	Gallons
MARCH 24. By "Fairfield City," Far East.	
General Rubber Co.	65,116
APRIL 12. By "Dryden," Far East.	
General Rubber Co.	195,020
APRIL 18. By "Steel Traveller," Far East.	
General Rubber Co.	66,898

Inventory—Production—Shipments of Pneumatic Casings—Inner Tubes—Solid Tires—Rubber and Fabric Consumption

High Pressure Pneumatic Casings

	Cord			Fabric			Balloon Casings			Solid and Cushion Tires		
	Inventory*	Production	Total Shipments	Inventory*	Production	Total Shipments	Inventory*	Production	Total Shipments	Inventory*	Production	Total Shipments
Twelve mos. 1925.	3,723,296	23,631,807	22,685,933	607,681	6,433,865	7,211,608	1,775,428	15,567,644	14,628,137	148,080	758,900	800,395
1926												
January	4,453,490	1,621,383	1,045,302	810,883	402,784	184,951	2,195,922	1,416,409	1,000,490	170,674	57,928	34,361
February	4,907,181	1,756,189	1,187,990	978,152	254,537	103,127	2,487,498	1,598,246	1,285,999	196,477	59,318	29,629

	High Pressure Inner Tubes			Balloon Inner Tubes		
	Inventory*	Production	Total Shipments	Inventory*	Production	Total Shipments
Twelve mos. 1925.	6,489,331	45,864,008	45,887,316	1,995,277	16,096,518	14,856,699
1926						
January	8,297,117	3,537,722	1,706,680	2,473,366	1,569,248	1,085,352
February	9,966,723	3,316,739	1,568,305	2,850,865	1,801,922	1,233,663

Cotton and Rubber Consumption in casings, tubes, solid and cushion tires

	Cotton Fabric Pounds	Crude Rubber Pounds
Twelve mos. 1925	168,295,927	552,389,272
1926		
January	13,197,979	44,527,984
February	13,250,686	43,160,777

*As of December 31, 1925. Compiled from Rubber Association figures.

RUBBER REDUCING GARMENTS

Plantation rubber in 1924 ranged from 18 to 40 cents a pound and averaged less than 30 cents and new outlets were being sought for the heavy stocks of spot rubber. Under these conditions the sudden rise to popularity of the rubber reducing corset featured so prominently that year caused much interest and expectation both in the corset and rubber trade.

The demand for the new type corsets reached the rate of 5,000,000 garments a year. The construction of the rubber corsets was rapidly developed to maintain their popularity but the demand subsided almost as quickly as it had arisen. Doubtless a number of causes contributed to this. Its popularity proved short lived because its promoters sought to appropriate the entire established field of corsetry with a specialty having a definite function. That the corset trade understood this was indicated in an article in *The India Rubber World*, August 1, 1924. The statement was there made that the corset trade had pointed out that wearers of the new type corsets should be reminded that rubber corsets are not style garments and should only be worn in conjunction with a fabric garment. In other words they were a specialty with a definite purpose.

The production of rubber corsets has since disappeared, comparatively, and the manufacture of rubber reducing garments has settled into steady production as a rubber goods article designed only to effect reduction in weight of various parts of the human body.

Thus from the popular fad of two years ago there emerged a new line of rubber specialty garments of moderate and all-the-year-around demand. They are made of selected pure first latex crêpe rubber without bones or lacing and are designed and constructed on strictly scientific and hygienic principles. They may be worn either under or over an undergarment as desired and are secured by hooks.

These garments have great variety of shape to adapt them for reducing the weight of any portion of the figure from the ankles to the chin. When properly handled and cared for they retain their strength, elasticity and utility unimpaired for several months and their use is said to give the wearer practical command of the body weight and contour.

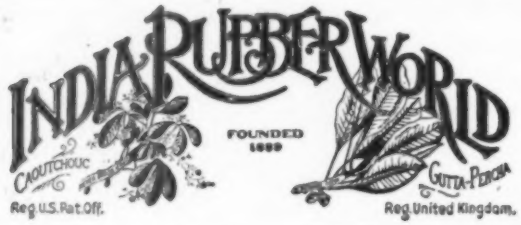
HAWAIIAN BOY WINS FIRESTONE SCHOLARSHIP

For the first time since the Firestone University Scholarship was offered six years ago the winner has been a student living outside the continental borders of the United States. Among the papers, numbering approximately 200,000, which were submitted in this year's contest, the best was found to be that prepared by John Texeira, a student in the Kauai high school, territory of Hawaii, and of Portuguese parentage. The verdict of the judges of the essays, Andrew W. Mellon, Secretary of the Treasury, serving as chairman, was practically unanimous. The scholarship is valued at more than $4,000.

CANADIAN RUBBER HOSE AND BELTING EXPORTS

According to the Department of Commerce, Canadian exports during the past few years of rubber belting have shown a steady increase, from a total for 1920 of only 69,673 pounds, value $62,062, to the record figures for 1925 of 1,213,284 pounds, value $615,518. During 1925 the chief markets for these goods were: British South Africa, 277,473 pounds, value $139,704; Argentina, 207,484 pounds, value $94,115; the United Kingdom, 185,176 pounds, value $84,455; and Brazil, 113,540 pounds, value $47,508. Exports of rubber hose also advanced in 1925 to a value of $216,675, as compared with $157,208 for 1924.

DURING THE YEAR 1925 FRANCE EXPORTED 1,877,770 AUTOMOBILE casings as compared with 1,679,235 in 1924. According to the Department of Commerce, the leading markets in 1925 for these tires were the United Kingdom, 367,310; Switzerland, 185,580; Belgium and Luxemburg, 169,820; Algeria, 116,320; Spain, 115,320; and Australia and other British Oceania, 101,940.



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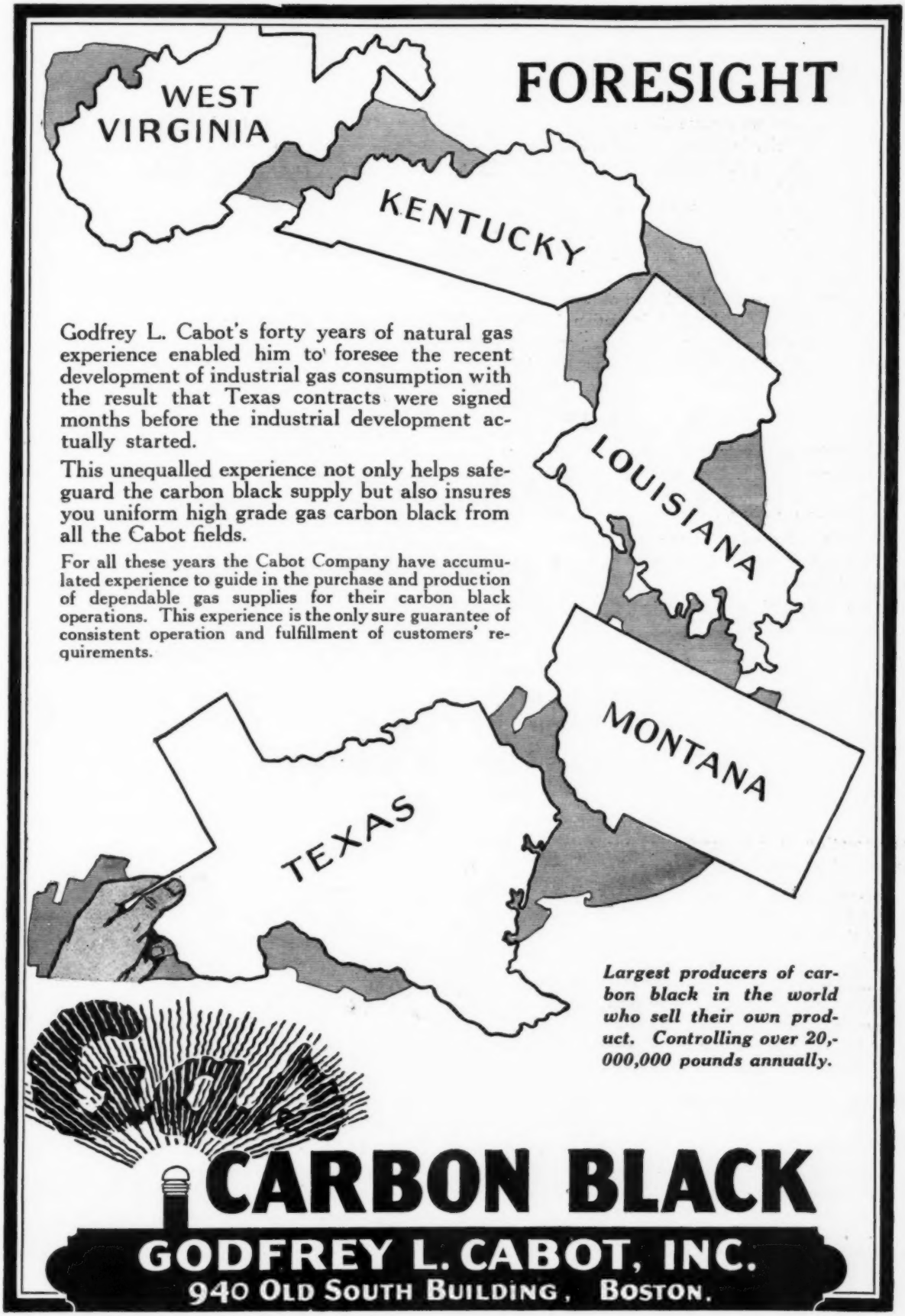
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Our Publicity Page

Rubber Dictionary Making

With this issue we resume the rubber glossary begun in 1921. Prior installments consisted of a very complete list of words and definitions relating to Crude Rubber, Gutta Percha, and Tires.

Number fifteen now beginning relates to words and terms used in Insulation, the products of which link together two of the greatest industries, rubber and electricity. While each is well supplied with technical wordbooks, insulated wire manufacturing is still in real need of a trade lexicon.

The nomenclature of electrical insulation is great and growing. Many of the terms are confusing, and new terms are being coined which should receive precise definition; while long-accepted terminology is undergoing revision.

Supplies an Educational Need

In attempting to supply this need, every effort has been made to insure the work being one of real helpfulness to everyone engaged in the making, sale, and use of insulated wire and all related articles.

It is our hope that manufacturers and distributers of insulated wire and materials will not only increase their own fund of information with such a complete glossary of trade terms, but with it they can also heighten considerably the interest of employes and purchasers; and, in turn, both of the latter classes can with such additional knowledge place themselves in a more advantageous position.

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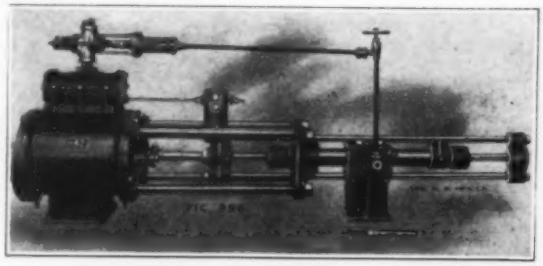

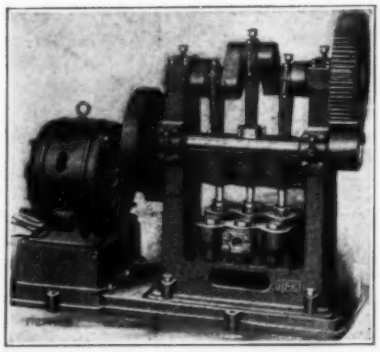

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